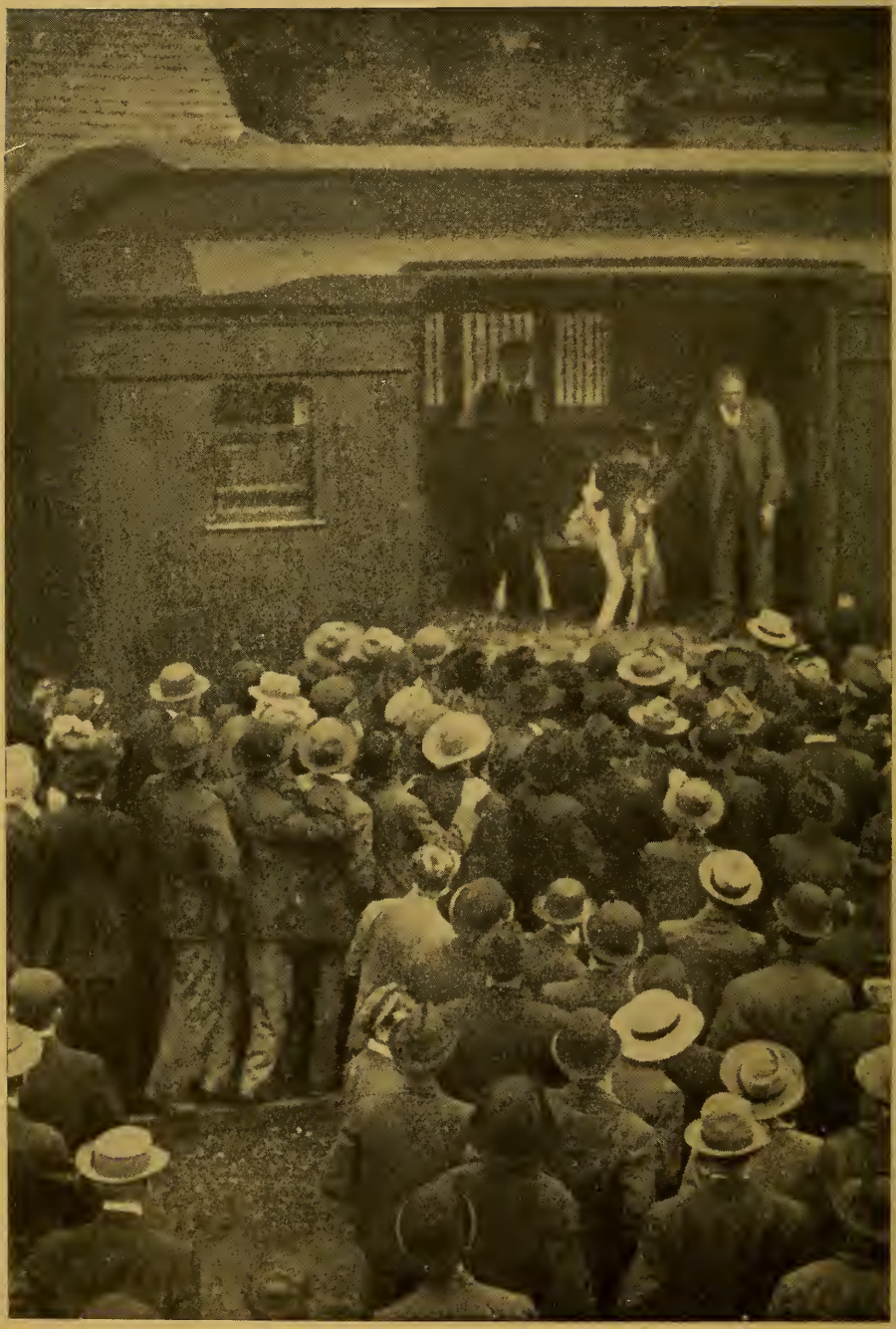
THE LIBRARY OF CONGRESS

USE YOUR GOVERNMENT



Train demonstration of points of a good dairy cow on Erie R. R. in Ohio.

USE YOUR GOVERNMENT

What Your Government Does For You

BY

ALISSA FRANC

YOU means man of business, farmer, exporter, home maker, school boy or school girl. In some way the Government helps each one of you. This book tells you how. The Government needs your help. You cannot give it unless you know how the Government operates. This book tells you how.

NEW YORK
E. P. DUTTON & COMPANY
681 FIFTH AVENUE

Copyright, 1918,
E. P. DUTTON & COMPANY

All rights reserved

APR -3 1918

Printed in the United States of America

©Cl.A494420

AUTHOR'S NOTE

To most of us perhaps the Government seems to consist of a body of men wasting an undue amount of time and therefore money in the making of laws—some good, some bad, some indifferent. That we can make direct personal use of the Government whatever our calling in life may be, but few of us have ever realized. This book is an attempt to show how many and varied are the ways in which the Government co-operates with and serves the people of the United States.

I wish to express my sincere thanks to those who by their courteous explanation of their work and by placing at my disposal data connected therewith, have made it possible for this volume to appear.

ALISSA FRANC.

CONTENTS

PART I

THE FARMER

CHAPTER		PAGE
I.	Planting and Growing of Crops	3
II.	Weather Reports	15
III.	Crop Estimates and Census of Agriculture	24
IV.	Controlling of Destructive Insects and Birds	33
V.	Fostering and Improving of Livestock. Dairying	41
VI.	Grazing on Forest Lands and Forest Fire Protection	45
VII.	Rural Roads and Rural Engineering	51
VIII.	Farm Management. Procuring of Farm Hands	56
IX.	Marketing. Regulatory Measures. Rural Organization	62
X.	Farm Finance	93
XI.	Investigations Concerning Diseases Prevalent in Rural Districts	107
XII.	Courses for Parents Organized by the Bureau of Education	112
XIII.	Government Assistance for Rural Schools	121
XIV.	Manner of Disseminating Information by the Department of Agriculture	125
	(*a*) Demonstration Work of the States Relations Service to: The Farmer, The Farmer's Wife, The Girls and Boys on the Farm	125

CHAPTER PAGE

(*b*) Office of Experiment Stations . . 143
(*c*) Farmers' Institutes and Movable Schools 144
(*d*) Office of Information, Office of Publications and Library . . 145

PART II

THE WOULD-BE SETTLER

I. The Disposition of Public Lands . . . 153
II. Irrigation of Arid Districts at Actual Cost 161
III. The Forest Service Work for the Settler 165
IV. The Work of the Geological Survey . . 167

PART III

THE MAN IN BUSINESS

I. General Assistance and Information Given to Those Transacting Business at Home and Abroad 171
II. Special Work Done for Various Industries 215
(*a*) The Mining Industry 215
(*b*) The Fishing Industry 226
(*c*) The Fur Trade 235
(*d*) The Lumberman 237
(*e*) The Shipper 238
(*f*) Scientific Commercial Investigations with Agricultural Products . . 242
(*g*) Development of Hydro-electric Power 248
(*h*) National Parks 249
III. Protection Afforded the Business Man By:
(*a*) The Federal Trade Commission . . 252
(*b*) The Federal Reserve Board . . 258
(*c*) The Interstate Commerce Commission 260

PART IV

THE WORKING MAN

CHAPTER		PAGE
I.	Purpose of the Department of Labor	267
II.	Employment Service	268
III.	Information Concerning Labor Issued by the Bureau of Labor Statistics	274
IV.	Mediation in Disputes	277
V.	Investigations for the Safety and Health of Miners	281
VI.	Investigations Relative to Occupational Diseases and Industrial Hygiene	284
VII.	Community Organization	285
VIII.	Supervision of Seamen's Contracts	288

PART V

THE IMMIGRANT

I.	Care During Possible Detention at Immigration Stations	291
II.	Helping the Immigrant Get Employment	294
III.	Teaching Immigrants Citizenship and English	296

PART VI

THE NEGRO

I.	Statistics and Detailed Report Concerning the Education of the Negro in All Parts of the United States	309
II.	Assistance Given to the Negro Farmer	315
III.	Home Economics for the Negro Woman	317
IV.	School and Home Gardening in Cities for Negro Children	319

PART VII

THE WOMAN IN HER HOME

CHAPTER		PAGE
I.	Investigations Made and Advice Given Concerning the Practical Problems of the Home	323
II.	Inspection of Foods, Drugs and Meat—Purifying of Water	331
III.	The Mother and Baby	336
IV.	Employment Service—Women's Division	349

PART VIII

GIRLS AND BOYS

I.	What the Government Does to Assist Education	353
II.	Employment Service and Enforcement of Federal Child Labor Act	368
III.	Reading Circles	370
IV.	School and Home Gardening	371

LIST OF ILLUSTRATIONS AND DIAGRAMS

Train Demonstration of Points of a Good Dairy Cow on the Erie R. R. in Ohio . . . . . *Frontispiece*

PAGE

Heaters in Operation after a Warning from the Weather Bureau 16

Crop Reporters Waiting to Telegraph 16

Specimen of Flood Warning Issued by the Weather Bureau 20

Specimen of Monthly Crop Report 25

Spraying Cart used by Bureau of Entomology in Operations against the Gipsy and Brown Tail Moth 34

Vaccinating Cattle against Black Leg with Vaccine Furnished Free of Charge by the Government . 41

Dipping Cattle in Arsenical Solution to Kill Ticks . 41

Dairy Meeting—How the Model of a Cow Stall was Used in Discussing Model Barns 43

Poultry and Egg Packing Demonstrating Car of the Bureau of Chemistry 43

Example of a Farmers' Bulletin 44

Forest Rangers Fighting a Fire in the National Forests 47

Marking Timber for a Sale under Government Regulation 47

Crops Drowned Out for Lack of Drainage . . . 52

Good Crops on the Same Land After Tile Drainage According to Instruction of Office Public Roads and Rural Engineering 52

Notice Issued by the Department of Labor Concerning Employment of Farm Hands 61

PAGE

Sketch Map Indicating Shipments of Fresh Tomatoes 66-67

Diagram Issued by the Bureau of Markets . . . 68

Cotton Classification Laboratory, Final Inspection of Cotton Standards, Washington, D. C. . . . 75

A Complete Set of the Official Cotton Standards of the United States for American White Cotton . . . 75

Shipping Day of Live Stock Shipping Association. Farmers Delivering and Unloading Stock . . . 78

Engineer Engaged in Water Resources Measurements for the Geological Survey 78

Diagram Showing Rates of Interest in Various States 93

Chart Showing How Malaria Was Reduced in 1916 . 109

Operating on Trachoma Patients at a Trachoma Clinic. U. S. Public Health Service 110

These two Men Led each other to the Hospital of the Public Health Service and Went Home Cured . 110

Certificate Given to Members of Reading Circles . 113

A Demonstration in Applying Poisoned Bran in Grass-hopper Fight 127

The County Agent Conducts Parties of Farmers on "Excursions" to Farms of Successful Men whose Good Work Makes the best "Demonstration" . . 127

A Canning Club taking Lessons in Canning . . 135

A "Mother-Daughter" Canning Team. (See "Mother-Daughter" Canning Clubs.) 135

A Corn Club Boy who Made a Record of 228 Bushels of Corn to the Acre 141

Two Hogs. Larger Hog Raised by Boy under the Direction of County Agent Weighed 380 lbs. at 9 Months. Smaller One Raised by His Father . . 141

Roosevelt Dam, Arizona. Principal Engineering Feature of the Salt River Valley where 200,000 Acres Have Been Reclaimed Through the Reclamation Service 161

PAGE

A Group of Small Farms Reclaimed from Desert by the Reclamation Service 161

Samples of European Hardware Sold in South America Gathered by the Bureau of Foreign and Domestic Commerce 176

Standardizing Precision Weights at the Laboratory of the Bureau of Standards. The Observer is Using a Telescope to Read the Position of the Balance Arms 196

Picture of the Bureau of Education Showing Colored Youths Learning to Master Germs that Menace the Life of their Race 313

Two Colored Children Receiving Instruction in the Household Arts 313

A typical Negro House 315

What a Coat of Paint under the Direction of the Demonstration Agent Will Do 315

Fishing Commission Car for the Transporting of Fish 234

Nevada Falls. Yosemite National Park. One of the Loftiest Waterfalls in the World 250

Bureau of Mines Rescue Crew. Stretcher Drill . . 282

Bureau of Mines Rescue Corps Entering Mine Following Disaster 282

Government Meat Inspector Applying Inspection Mark to Inspected and Passed Hog Carcasses . . 334

Raw Oyster Inspection 334

INTRODUCTION

To-day, perhaps more than at any other time in our national existence, every American citizen is keenly alert as to the immediate relation of the Government to the people. Years of study, of scientific application, of experiment on the part of the Government have resulted in numerous activities for the well-being of American citizens. The actual operation and the practical extent of these activities is not generally known. To make them widely known is to further very materially that deep sense of loyalty which is the very basis of nationality. Miss Franc's book is eminently suitable to be used to introduce the American Government, as it operates to-day, to every man, woman and child within its protection. The book is not a stereotyped manual of civics. In adopting the arrangement of her material Miss Franc has succeeded in producing a sense of relationship of the Government to the citizenship, regardless of age, sex or color, which is usually lacking in books on civics, and it may be regarded as the first book of its kind on this vital subject.

At this especial time I can see two, at least, very important reasons for the publication of a book of the nature of Miss Franc's. Unknown to the American public at large there is developing under the United States Government a remarkable network of activities functioning as economic utilities. The vast

attempt, to mention only one instance, of the agricultural extension work projected by the Government is actually known to but few. To bring home to every American man, woman and child, a knowledge of what the Government is doing for the people in a directly practical way, would in itself be ample justification of such a volume as Miss Franc has written.

Of our Allies, especially France will make efforts, once peace is restored, to profit by America's experience in social and agrarian economics as fostered by the Government. There is of course a very large official literature from which Government activities can be studied. It has remained, however, for Miss Franc to present these activities in a concise, attractive and intelligent form, so that foreigners and Americans alike may now learn what the United States Government is doing for the people.

There undoubtedly is in the public mind at the present time the first stirring of a conviction that if there are faults in our educational system, one of them is the alienation of citizenship from the curriculum of our elementary and secondary schools. The material for the teaching of citizenship has left much to be wished for.

Miss Franc's "Use Your Government" is an admirable contribution to the best of the literature at the disposal of the American teacher of civics.

Adelaide R. Hasse,
Chief of Economics Division,
New York Public Library.

PART I

THE FARMER

CHAPTER I.—PLANTING AND GROWING OF CROPS

The Government is doing more for the farmer than any other part of the population and is occupied with a study of agriculture in all its phases from the seed to the consumer.

The Department of Agriculture had its origin in the far-sighted wisdom of Washington, who as President suggested the organization of a branch of the National Government to care for the interests of farmers. In order to bring the matter of a Board of Agriculture before the public, Washington in his last message to Congress on December the 7th, 1796, stated:

> "In proportion as nations advance in population the cultivation of the soil becomes more and more an object of public patronage. Institutions grow up supported by the public purse. . . . Among the means which have been employed to this end none have been attended with greater success than the establishment of boards composed of public characters charged with collecting and diffusing information, and enabled by premiums and small pecuniary aid to encourage and assist a spirit of discovery and improvement. This species of establishment

contributes doubly to the increase of improvements by stimulating to enterprize and experiment and by drawing to a common center the results everywhere of individual skill and observation and spreading them thence over the whole nation.''

In 1839 took place the first appropriation by Congress of $1,000 for the purpose of collecting and distributing seeds, prosecuting agricultural investigations and procuring agricultural statistics. The money was taken from the Patent Office fund and the work was to be done under the Commissioner, at that time an official of the Department of State.

To-day the appropriation of the Department of Agriculture is over $7,000,000 a year, and its staff numbers about 20,000, and it is estimated that at least one farm out of every twenty is working in some way with the Department, thus becoming a center of advanced agricultural information for its community.

Bureau of Plant Industry.

Scientific help is brought to the farmer in the planting of his crops by the Bureau of Plant Industry which ascertains what important crop plants might be produced in particular regions of the country, searches the world for grains, fruits, vegetables, grasses and legumes, that might be useful, secures new varieties of plants, crops and vegetables by breeding, and controls destructive diseases and tests seeds.

The knowledge obtained for the farmer is spread

in part through the demonstration agents of the States Relation Service (see page 125), and through the Farmers co-operating with the department (see page 4), and by the staff of the Bureau of Plant Industry itself.

The introduction of new crop plants and fruits was established even before the Department of Agriculture was a separate institution.

This field of study has always been actively pursued by the Department, and it was the first systematic attempt by any Government to supply its bona fide plant experimenters on an extensive scale with the material out of which new plant industries can be built.

For instance, one of the earliest explorations undertaken in this field was for the purpose of aiding the rice growers in the southern states. During the year 1898, and again in 1901, an explorer was sent to Japan, China and India for the purpose of securing types of rice better adapted to the condition of southern Louisiana, and Texas, and more suited to the needs of the market especially as regards milling qualities.

Another explorer about that time was sent to Russia for the purpose of securing help in the matter of grains adapted to the northwestern semi-arid regions. A large extent of territory in this section was yielding no valuable crop returns. As the result of this first exploration work in 1898 followed

by a second trip in 1900, large quantities of drought resistant Durham wheat, and other varieties of wheats, oats and special cereals were brought in.

The whole alfalfa question in the United States has been put on a new basis by the introduction of the Turkestan, Siberian, Arabian and Peruvian alfalfas, and the development of the hardy hybrid strains which grow in the southwest throughout the winter.

The seedless grapes of Italy and Greece were brought into the raisin industries of the Pacific coast.

The date palm has long ago ceased to be a curiosity in the desert regions of the southwest, and its cultivation has become an important industry.

The Chinese persimmon varieties have proved quite as well adapted to conditions in America as the Japanese variety, and are showing certain advantages over them. They have added a distinct new type of fruit to our fruit culture.

These are but a few of the types from abroad introduced through the work of the Bureau of Plant Industry.

The work now as formerly consists in locating in different parts of the world promising new crop plants, bringing them to this country and testing them in regions where they may be expected to be useful, as adjuncts to existing agriculture, or to supplant or supplement existing crops.

New seeds and plants from various parts of the world are brought in each year, and persons interested in the subject have only to write to the Department for information.

The work is done through extensive correspondence and special shipping arrangements with foreign institutions and individuals and diplomatic and consular officials abroad on the one hand, and Federal and State experiment station officials, private experimenters and park superintendents on the other. This international exchange is kept up, and the growing demand supplied for new and rare seeds and plants for the development of new industries in this country.

All importations are opened and inspected by the Federal Horticultural Board (see page 12).

The various introductions are given distinctive numbers and all information available referring to the introduction is recorded on a card bearing this number and filed. A bulletin of foreign plant introductions is sent out monthly to the department co-operators, giving a list of the special introductions received.

The Bureau test seeds for firms or individuals and reports on the results of such tests for mechanical purity or vitality. Identification of weed seeds are also made, as well as studies concerning the quality of commercial seeds; the Bureau publishes

information as to the extent and sale of adulterated or misbranded foreign seed plants.

Great progress has been made in the matter of securing good seed for the farmer. This work continued from year to year has resulted in a much better understanding of the nature and value of pure seeds, and has added much to the building up of agriculture.

The work of the laboratory of the Bureau of Plant Industry, and that of the state experiment stations, awakened an interest in better seeds on the part of the farmers. This is shown by the steady increase in the proportion of high grade seeds on the market each year.

This division is responsible for the enforcement of the Seed Importation Act which prevents unscrupulous seed dealers from bringing into the United States low grade seeds which do not find a sale in foreign countries but which have previously been imported into the United States in considerable quantities.

It also co-operates with several states in the enforcement of Pure Seed laws, working with seed men to induce them to label their seeds accurately so as to get a uniform standard of seeds.

The question of "seeds" from an educational angle is also taken up, with regard to the different lengths of time seeds should be kept, conditions of testing, etc.

The Bureau also handles the mechanical and routine pages of the Congressional Seed Distribution, there being distributed each year, by each Congressman, 20,000 or more packages of seed to farmers and others of his constituents.

The diseases of cereals, fruits and vegetables are investigated whenever these seem of importance to the country at large. Diseases known to the Bureau are under constant examination in order that means may be suggested for checking them. New diseases are examined and methods for their control found. For fruits, as a rule, spraying methods meet the needs of the industry, and can be developed quickly. For general farm crops, cereals, etc., the control of diseases will depend on either developing systems of seed selection or rotation.

Work on the diseases of vegetables includes field, and also storage conditions, and investigations, both scientific and practical, are undertaken with these.

The farmer is encouraged to write to the Bureau, giving a description of the conditions of disease he is attempting to cure, and if feasible, he is asked to send in specimens of diseased plants or vegetables. Should his samples show signs of a disease already known to the Bureau he will be given the advice at hand, and his county agent (see page 125) would be instructed to communicate with him; if, however, it seems to be a question of a new disease, or a problem not yet worked out the Bureau makes a thor-

ough investigation. Should it prove a problem likely to be of universal interest or concern an investigation already in hand, the farmer is told how far the Bureau has progressed and he is given the best general advice to be had on the subject.

Experiments both highly technical and practical are undertaken with regard to the breeding of plants, cereals, fruits and vegetables, in order to improve their varieties both in productiveness and quality, and so that there may be developed types resistant to plant diseases.

After new types have been developed and their success ascertained, they are brought into general use through the large number of volunteers co-operating with the department, who assist the Bureau in testing out the various new types developed, through the demonstration agents (see page 125), and by giving out direct information to farmers known to be specially interested in the subject.

Experiments have been made with regard to the acclimatization of crops and methods of culture. It was often found that even in the case of good varieties of crops moved from one place to another suddenly, these would break up into many varieties and deteriorate. A special line of work was therefore established, which concerned the transporting of crops from one region to another.

After experiments are concluded every effort is

made with the aid of these co-operators to get the work over to the public at large.

Experiments are made with all crops concerning their general use through improvement in cultivation and the utilization as well as the different rotations in crops.

The Bureau has been devoting special attention to cotton experiments so as to improve the types at present prevalent in the country.

The Bureau carries on highly technical experiments in plant nutrition in order to study the growth, development and composition of plants as affected by nutrition.

Highly technical experiments are also carried on with regard to soil, fertilizers, etc.

Bureau of Soils. The chief work regarding soil, however, is carried on by the Bureau of Soils, whose work is of vast importance.

The work of this Bureau may be divided into soil survey, fertilizer investigation, and laboratory investigations.

The soil survey consists in making a detailed study of agricultural conditions and possibilities of each state, county by county, mapping the types of soils, streams, roads, transportation facilities and photographic features, indicating adaption to crops and fertilizer acquirements and mechanical treatment. These maps are published for general distribution, and are of great value to the farmer, pros-

pective settler and business organizations, and constitute the fundamental basis for scientific and practical investigations.

The fertilizer investigations consist in the conducting of a survey of the fertilizer resources and in investigating methods and materials used in the manufacture of fertilizers with a view to cheapening processes and to stimulating production. New sources of supply are being pointed out, and the Bureau is endeavoring to save the present waste of fertilizer materials taking place in other industries, as for instance, in the manufacture of cement and coke and in blast furnaces.

The manufacture of potash from the vast Pacific coast bids fair to replace that heretofore imported from Germany, and the extraction of nitrates from the air is a prominent feature of this work.

The laboratories of the Bureau co-operate in all lines of investigation solving scientific and technical problems relating to soil and fertilizer investigations.

Federal Horticultural Board.

The province of the Federal Horticultural Board created under authority conferred by the Plant Quarantine Act of August 20th, 1912, is to guard against the introduction of new injurious plant diseases and insect pests and to prevent the further spread of plant diseases and insect pests now occurring in this country. The work is done in co-operation with state inspectors,

customs officials, postmasters and American consuls as well as inspectors in foreign countries.

The control of plant and plant products (the entry of which is regulated) is effected by means of permits and, in the case of nursery stock, by providing foreign inspection of such stock, by securing from importers and customs officials reports of arrival and proposed distribution, and by the transmitting of such reports to state inspectors who again inspect the stock at destination. The Board also keeps records of importations, and takes steps to maintain full compliance with the regulations on the part of the inspectors in foreign countries as to proper certification and marking. In addition to nursery stock, the entry of Irish potatoes, alligator pears, cotton, corn, cotton-seed products and citrus fruits has also been regulated. All of these plant products are subject to inspection at port of entry by inspectors of the Department of Agriculture. In the case of cotton all importations are disinfected on arrival with hydrocyanic-acid gas under the supervision of inspectors of this department and the ports of entry are limited to northern cities.

One of the most important projects of the Board at the present time is the work being done to prevent the entry of the pink boll-worm, one of the most injurious cotton pests known. This insect originated in India, was carried to Egypt some eight or ten years ago, where it reduced the cotton crop at

least twenty per cent., has almost destroyed the cotton crop of the Hawaiian Islands, and has recently become established in Brazil and Mexico. This insect is carried from one country to another in the seed and this pest was responsible for the quarantine against cotton-seed from all foreign countries and localities which became effective July 1, 1913. To prevent the possible introduction of the pink bollworm from Mexico into the cotton-growing districts of the United States, Congress at its last session voted a sum of $250,000. It is proposed to establish in co-operation with the State of Texas a cotton-free zone in Texas along the Mexican Border approximately 50 miles in width. All railway cars and other vehicles and freight of all kinds for Mexico offered for entry at the border ports are inspected, and if found necessary cleaned and disinfected before entry is permitted.

CHAPTER II.—WEATHER REPORTS

Weather Bureau.

The Weather Bureau makes daily forecasts and weather maps for the benefit of the public. These forecasts are based upon simultaneous observation of local weather conditions taken daily at 8:00 a. m. and 8:00 p. m., 75th meridian time, at about 200 regular observing stations scattered throughout the United States and the West Indies, and upon similar reports received daily from various points in other parts of the Northern Hemisphere. Each of the Weather Bureau Stations is operated by one or more trained observers, and is equipped with all the scientific devices which make a continuous automatic record of the local weather conditions and changes.

The results of the twice daily observations are immediately telegraphed to the central office at Washington and to other forecast centers where they are charted for study and interpretation by experts trained to forecast the weather conditions that may be expected to prevail during the following 36 to 48 hours.

A complete telegraphic report includes the following data:

Temperature, pressure reduced to sea level, precipitation, direction of winds, state of weather, current wind philosophy, clouds, and maximum or minimum temperature since last observation.

From these data the forecaster by comparison with preceding reports is able to trace the paths of storm areas from the time of their appearance to the moment of observation and approximately determine and forecast their subsequent forces, and attendant weather conditions.

Weather services similar to that of the United States are maintained by the Canadian and Mexican Governments, and by a system of interchange daily reports are received from a number of stations in these countries. Daily observations are also received from the Azores, Iceland, the Faroe Islands, Great Britain, Germany, France, Portugal, European and Asiatic Russia, China, Japan, the Philippines, Hawaii, and Alaska. The field represented by the daily reports, therefore, extends practically over the entire Northern Hemisphere.

Within two hours after the morning observations have been taken the forecasts are telegraphed from the forecasts centers to about 1,600 principal distributing points. They are further sent out by telegraph, telephone, wireless telegraphy, and mail. The forecasts reach nearly 90,000 addresses daily by the mail, the greater part being delivered early in the day and none later than 6:00 p. m., of the day

Heaters in operation after a warning from the Weather Bureau.

Crop reporters waiting to telegraph. (See page 28.)

of issue, and are available to more than 5,500,000 telephone subscribers within an hour of the time of issue.

The rural free mail delivery system and rural telephone lines are also being utilized to bring within the benefits of this system a large number of farming communities.

The weather map is mailed immediately after the morning forecast is telegraphed. On this map the chief features of current weather conditions throughout the country are graphically represented.

This work of the Bureau is divided into 44 local sections, each section as a rule covering a single State and having for its center a regular observing station.

These centers each month collect temperature and precipitation observations for more than 4,500 cooperative and other stations, and publish a monthly and annual summary, giving a large amount of climatological data for each month and the year.

During the crop growing season, April to September, each section center also receives weekly reports of weather and crop conditions from numerous correspondents.

During the crop growing season the central office in Washington also issues a National Weather and Crop Bulletin containing a general summary of

weather and crop conditions for the entire country as well as individual summaries for the various States. It also contains a series of charts and diagrams, showing graphically the actual and normal condition of precipitation and temperature for the current week, and for the preceding weeks of the season in the principal crop growing areas. The diagrams also contain data showing the condition of the principal crops in those areas for months and months as furnished by the Bureau of Crops Estimates.

There is issued at the Central Office every Tuesday during the winter season a publication entitled "Snow and Ice Bulletin," which shows the area covered by snow, the depth of snow, and the thickness of ice in rivers, etc., as indicated by a large number of reports of observations made on the afternoon of the day preceding the issue of the bulletins. This publication is of special value to those interested in the winter wheat crop, the ice dealers, and to the manufacturers of rubber goods and other articles the sale of which is largely affected by the presence or absence of snow and ice.

During the growing season in the cotton, corn, wheat, sugar, rice, corn and cattle producing sections, designated centers receive telegraphic reports of precipitation and daily extremes of temperature from the sub-stations in the various sections for publication in bulletin form, each lo-

cal center receiving condensed reports from all others.

Several hundred stations are maintained in the elevated regions of Washington, Oregon, California, Idaho, Utah, Montana, Wyoming, Colorado, South Dakota, New Mexico and Arizona for the purpose of obtaining precise measurements of the depth of water and content of snow which falls in the elevated portions of those States. Such measurements are useful in determining approximately the amount of water available for irrigation purposes on the adjacent lowlands.

In Utah special observation work has been concentrated in one or more small watersheds, where a great number of measurements are made, and eventually the water available for irrigation is determined with considerable accuracy.

The warnings of those sudden and destructive temperature changes known as cold waves are of great importance. These warnings, which are issued from 24 to 36 hours in advance, are disseminated throughout the threatened regions by means of flags displayed at the regular weather bureau stations by telegraph, telephone, and mail service to all parts receiving the daily forecast and to a large number of special addresses in addition. The warnings issued for a single cold wave of exceptional severity and extent resulted in saving over $3,500,000, through the protection of property from

injury or destruction. (For Flood Warning see page 205.)

The Bureau in a pamphlet on the subject states

U. S. DEPARTMENT OF AGRICULTURE. WEATHER BUREAU.

Telegraphic Reports Received at Washington, D. C. 191

Memphis, Tenn., March 26, 1913.

Observer,
Washington, D.C

The river at Memphis will pass flood stage by Friday. No forecast of flood height in this district possible at present. stages exceeding forty feet at Memphis and exceeding fifty feet at Helena are certain. Public warned to prepare for severe flood,

Emery.

Memphis Tenn., March 27, 1913.

Observer,
Washington, D.C.

Expect flood stage Memphis Saturday and 40.0 feet in next five or six days. A stage approximating 45.0 feet now seems possible.

Emery.

Memphis, Tenn., April 2, 1913.

Observer,
Washington, D.C.

Helena 43.6; New Madrid 41.6; now expect Memphis to exceed 45.0 and 46.0 is possible provided levees hold. Have advised interests to prepare for 46.0 Memphis and 55.0 Helena.

Emery.

(A stage of 46.5 feet was reached at Memphis on April 10)

SPECIMEN OF FLOOD WARNING ISSUED BY THE WEATHER BUREAU, DEPARTMENT OF AGRICULTURE

that its data is used in the Agricultural districts as follows:

The daily maps and bulletins and the general bulletin report containing statistical data are used by the retailer and small farmer.

In the agricultural districts the frost and cold wave warnings are of great value to the trucker and fruit grower, especially in the spring when the tender vegetables are protected by covering with paper, cloth, or soil, and fruit is safeguarded by smudging, irrigation, or other methods designed to maintain the temperature above the danger point. In the fall these warnings are utilized in the cranberry regions by flooding the bogs until after the cold weather has passed or the danger of frost is over.

It may be said that the warnings of the Weather Bureau regulate the safety of all crops for the farmer.

In the raisin-growing districts of California rain forecasts are of great value. The raisin crop while drying is extremely susceptible to injury from rain, and the warnings enable the producers to protect the fruit by stacking and covering the trays. The accuracy of the rain forecasts for this region and the system for their distribution have been so complete that practically no loss from this cause has occurred for years. Rain forecasts are also utilized in the large fruit-growing districts to enable picking in advance of rains, so that the fruit can be shipped dry.

The warnings of frost and freezing weather are of immense value, particularly to the fruit, sugar, tobacco, cranberry, and market gardening interests. The early truck raising industry, so extensively car-

ried on in the regions bordering on the Gulf and south Atlantic coasts and in Florida, and which has increased so greatly in recent years, is largely dependent for its success on the cooperation of the Weather Bureau in this particular, and the growers of oranges and other fruits in Florida and California have received great benefit. The value of the orange bloom, vegetables, and strawberries protected and saved on a single night in a limited district in Florida, through the instrumentality of warnings of freezing weather sent out by the bureau, was reported at over $100,000.

In the citrus fruit districts of California it is reported that fruit to the value of $14,000,000 was saved by taking advantage of warnings issued by the bureau during one cold wave.

The deciduous fruit districts of Washington, Oregon, Idaho, Utah, Colorado, and throughout the East, rely upon the warnings of the bureau to guide them in smudging and heating their orchards on the occurrence of frost or freezing weather during the blossoming period.

The warnings of the Bureau are also of great importance on the Western ranches and plains where the stock is hurried from the ranges to shelter upon notice of blizzards or heavy snows.

Special uses of storm warnings are found in the measure adopted to protect property and crops subject to inundation from high tides or back wa-

ters blown up by the wind. For instance, the rice planters before a predicted storm flood their crops to prevent the straw from being broken by the wind.

CHAPTER III.—CROP ESTIMATES AND CENSUS OF AGRICULTURE

Bureau of Crop Estimates.

The Bureau of Crop Estimates sends out monthly reports as the crops progress.

Beginning with the planting data is gathered and reports made as to the condition and acreage of each of the principal agricultural products, such as corn, wheat, oats, rye, barley, potatoes, hay, cotton, tobacco and rice, etc. Such reports are expressed in percentages, 100 representing normal conditions. With these statements are given the averages of similar reports at corresponding dates in previous years (usually ten year averages). By such comparison the condition of crops in comparison with the average conditions is readily obtained. At harvest time the yields per acre are ascertained, which being multiplied by the acreage figures already ascertained give the production.

The reports issued by the Bureau of Crop Estimates during the year include the data relating to acreages, conditions, yields, supplies, qualities, and value of farm crops, numbers by classes, condition, and values of farm animals, etc.

Monthly Crop Report

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

WASHINGTON, D. C. OCTOBER, 1917 VOL. 3, No. 10

The MONTHLY CROP REPORT is a publication of the Bureau of Crop Estimates, under the authority of the Secretary of Agriculture. All communications in relation to the contents of this publication should be addressed to the Chief of the Bureau of Crop Estimates, United States Department of Agriculture, Washington, D. C.

Requests by crop correspondents of the Bureau of Crop Estimates for Farmers' Bulletins, and other publications of the Department of Agriculture available for distribution should be made direct to the Chief of the Bureau of Crop Estimates, United States Department of Agriculture. Other applicants should address the Division of Publications, Department of Agriculture.

UNITED STATES CROP SUMMARY FOR OCTOBER.

	Oct. 1, 1917, indications.	Change since Sept. 1.	December, 1916, estimates.	1911–1915, 5-year average.	Country prices Oct. 1.		
					1917	1916	1911–1915, 5-year average.
Winter wheat.....bushels.	[1] 417,347,000	.....	461,744,000	542,615,000	.....	.....	.....
Spring wheat.....do.	[1] 342,450,000	— 7,909,000	158,142,000	263,746,000	.....	.....	.....
All wheat.....do.	[1] 659,797,000	— 7,909,000	620,886,000	806,361,000	$2.006	$1.383	$0.868
Corn.....do.	[2] 3,210,785,000	—34,717,000	2,533,241,000	2,754,164,000	1.751	.823	.73
Oats.....do.	[1] 1,598,714,000	+47,382,000	1,251,992,000	1,230,199,000	.623	.445	.367
Barley.....do.	[1] 201,689,000	— 2,180,000	198,927,000	197,211,000	1.139	.765	.554
Rye.....do.	[1] 56,044,000	.....	47,283,000	41,399,000	1.006	1.041	.751
Buckwheat.....do.	[illegible]	[illegible]	[illegible]	16,541,000	1.541	.904	.732
White potatoes.....do.	452,923,000	— 6,985,000	296,437,000	362,916,000	1.221	1.120	.854
Sweet potatoes.....do.	87,244,000	— 907,000	70,955,000	60,257,000	1.161	.857	.....
Flax.....do.	11,335,000	+ 378,000	15,459,000	18,615,000	3.065	1.992	1.502
Rice.....do.	33,256,000	+ 1,019,000	40,702,000	25,286,000	.....	.....	.....
Tobacco.....pounds.	1,243,023,000	+21,837,000	1,156,622,000	963,723,000	.....	.....	.....
Cotton.....bales.	12,047,000	— 452,000	11,458,000	14,176,000	110.50	77.50	53.50
Peaches.....bushels.	[1] 42,606,000	.....	36,939,000	49,027,000	[1] 1.438	[1] 1.183	.....
Pears.....do.	10,548,000	+ 7,000	10,377,000	11,341,000	[1] 1.250	[1] 1.027	.....
Apples, total crop.....do.	176,628,000	— 537,000	202,245,000	215,572,000	1.008	.831	.....
Apples, commercial..barrels.	21,192,000	— 123,000	25,695,000	.....	3.198	2.461	.....
Hay, tame.....tons.	[1] 76,490,000	.....	69,991,000	69,543,000	.....	.....	.....
Hay, wild.....do.	[1] 15,225,000	.....	19,795,000	17,044,000	.....	.....	.....
Hay, total.....do.	91,715,000	.....	109,786,000	86,587,000	[3] 14.79	[3] 10.96	12.19
Sugar beets.....do.	7,832,000	— 113,000	6,228,000	.....	.....	.....	.....
Kafirs.....bushels.	98,669,000	— 4,329,000	50,340,000	.....	.....	.....	.....
Beans, commercial. . do.	[4] 15,814,000	—[4] 1,155,000	[4] 8,846,000	.....	[3] 6.69	[3] 4.60	.....
Onions, fall commercial crop.....bushels.	13,554,000	— 336,000	7,822,000	.....	.....	.....	.....
Cabbages, commercial..tons.	692,000	—. 75,000	252,000	.....	.....	.....	.....

[1] Preliminary estimate. [2] Price Sept. 15. [3] All hay. [4] Five States

TIME OF ISSUANCE AND SCOPE OF THE NOVEMBER CROP REPORT.

On Thursday November 8, at 2 15 p m (eastern time), the Bureau of Crop Estimates United States Department of Agriculture, will issue a crop summary which will give the following information The production and quality of corn, buckwheat potatoes sweet potatoes, tobacco, flaxseed, apples, and pears; the percentage of the 1916 corn crop on farms November 1 1917, the average weight per measured bushel of the wheat, oats, and barley crops of this year

A general review of crop conditions on November 1 will be given, which will include the following items The production compared with a full crop of clover seed grain sorghum, field peas, grapes, cranberries, peanuts, almonds, and walnuts average yield of sirup per acre of sorghum, condition on November 1, or at time of harvest, of sugar cane, sugar beets, oranges, lemons, limes, grapefruit, and olives. No report on cotton will be issued in November.

GENERAL REVIEW OF CROP CONDITIONS OCTOBER 1, 1917.

The composite condition of all crops of the United States on October 1 or at time of harvest was 2 4 per cent higher than their 10-year average condition on that date as compared with a condition 2 5 per cent above average on September 1 Final yields per acre of crops last year were about 4 9 per cent below average The index number of aggregate crop yields this year is about 7 7 per cent greater than last year This year the total acreage in cultivated crops is about 3 per cent more than last year.

The total production of important products this year compared with last year is estimated as follows Corn 124 3 per cent, wheat, 103.1 per cent, oats, 126 3 per cent, barley 111 5 per cent, rye, 118.1 per cent, buckwheat, 151.1 per cent; white potatoes, 158 7 per cent, sweet potatoes, 123 per cent, tobacco, 108 per cent, flaxseed, 73.3 per cent, rice, 81.7 per cent; hay (all), 83 6 per cent; clover hay 78 7 per cent; cotton, 105.2 per cent apples, 87 3 per

SPECIMEN OF MONTHLY CROP REPORT ISSUED BY THE DEPARTMENT OF AGRICULTURE

Weekly Reports are issued concerning truck crops in relation to acreage and condition.

The Monthly Reports estimated by states and for the United States are as follows:

Acreage. Corn, winter wheat, spring wheat, oats, barley, rye, buckwheat, potatoes, sweet potatoes, tobacco, flax, rice, tame and wild hay, cotton, clover, hay, sugar beets, beans, cranberries, and sorghum for syrup.

Condition. Expressed in percentages of normal, with comparisons: corn, winter wheat, spring wheat, oats, barley, rye, buckwheat, potatoes, sweet potatoes, tobacco, flax, rice, cotton, hay, clover seeds, millet, bluegrass for seed, field peas, apples, peaches, pears, grapes, etc., beans, cabbage, cauliflower, etc. Horses and mules, cattle, sheep, swine, and honey bees.

Forecasts of Production. Based upon condition estimates of corn, winter wheat, spring wheat, oats, barley, rye, etc., cotton, apples, peaches, pears, etc.

Yield Per Acre. Of corn, winter wheat, spring wheat, oats, barley, rye, potatoes, tobacco, fruits, and vegetables.

Forecasts of Production (*Quantitative*). As above.

Production (expressed in percentages of a full crop). As above.

Prices. Monthly or in season of corn, wheat, oats, etc., fruits, vegetables, honey, butter, eggs, cottonseed, bran, milk, maple sugar, wool, walnuts, peanuts, hogs, beef cattle, sheep, lambs, horses, etc.

Quality. Corn, winter wheat, oats, barley, etc., fruits, vegetables, etc.

Stocks on Farms on certain dates. Corn, wheat, barley, oats, and apples.

Quantity Shipped Out of County Where Grown. Corn, wheat, oats, barley, and apples.

Numbers. Total of horses, mules, milch cows, other cattle, sheep and swine, with percentage of preceding years. Also stock hogs, breeding sows, and honey bees.

Losses During the Year From Disease or Exposure. Horses and mules, cattle, sheep, lambs and swine.

Weight Per Unit of Measure. Wheat, oats, barley, and wool. In addition to the data regularly collected relating to crops or livestock as stated above, special investigations are occasionally made by request of other bureaus.

Yearly investigations are made on the following subjects: wages of farm labor, values of farm land, plowing and planting done by May 1; dates of planting and harvesting, maximum yields, causes of crop damage, monthly farm movements of grain and cotton; prices of articles purchased by farmers.

The most important part of the Yearbook of the Department of Agriculture (of which more than half a million are issued each year) is the statistical work. The statistics are collected in the Bureau of Crop Estimates and they include data relating to acreage and production of many agricultural products in all the important countries of the world.

Also the exports and imports of agricultural products of all the important countries.

Method of Issuing Reports. Reports in relation to cotton are issued on or about the first day of each month during the growing season.

Reports relating to the principal farm crops and livestock are issued about the 7th or 8th day of each month.

In order that the information contained in these reports may be made available simultaneously throughout the United States they are handed in at an announced hour, on report days to all applicants and to the Western Union Telegraph Company and Postal Telegraph Company, which have branch offices in the Department of Agriculture for transmission to the exchanges and to the press. These companies have reserved their lines at the designated times, and forward immediately the figures of most interest.

A multigraph statement containing such estimates of conditions or actual production, together with the corresponding estimates of former years, for comparative purposes is prepared and mailed immediately to newspaper publications.

The crop estimates for the States and for the United States as a whole are telegraphed immediately to State weather bureau directors, in whose offices copies are printed and mailed to all the local papers in the State, so that the crop estimates of the

Bureau are published throughout the United States within twenty-four hours of their issuance.

Promptly after the issuing of the report, it, together with other statistical information of value to the farmer and the country at large, is published in the "Monthly Crop Report," a publication of the Bureau of Crop Estimates under the authority of the Secretary of Agriculture. An edition of over 225,000 copies is distributed to the correspondents and other interested parties throughout the United States each month.

The practical value of the Government crop estimates results from the fact that they are based upon reports of farmers and others in every county and township of the United States, and upon reports of trained Field Agents in each State; they are made monthly during the crop season; they are checked up from every possible source of information; the final reports are prepared and issued by a crop reporting board of experts. All Government employees engaged in the preparation of the crop estimates are prohibited from giving out information concerning them, or in utilizing information so obtained for their own benefit directly or indirectly prior to the date and hour of publication. The reports when issued are known to be as accurate as it is practicable to make them, as well as impartial, disinterested, and therefore dependable.

Without such a system of crop estimates specu-

lators interested in raising and lowering prices of farm products would issue so many conflicting and deceiving reports that it would be almost impossible for any one without great expense, to form an accurate estimate of crop conditions and crop prospects.

Farmers are benefited by the Government crop reports both directly and indirectly. Directly, by being kept informed of crop prospects and prices outside of their own immediate district, and indirectly because disinterested reports of the Government tend to prevent the circulation of false or misleading reports by speculators who are interested in controlling or manipulating prices.

In a sense the Bureau of Crop Estimates is a form of farmers' cooperation wherein each farm crop reporter gives information about his locality and in return receives information about the entire country, the Bureau merely acting as a clearing house for such cooperative exchange.

The more certainty there is as to the probable supply and demand, the less chance for speculation and loss in the business of distributing and marketing the crops, which is a benefit both to the producer and the consumer.

Bureau of Census. The Decennial Census, taken in a year divisible by ten (see page 206), covers, in addition to population, manufactures and mines and quarries, the subject of agriculture. The re-

ports, like those for population and manufactures, are issued not only in large bound volumes but also in the form of numerous paper bound bulletins. One series of these bulletins represents the agricultural statistics for each individual state, a separate bulletin being issued for each state. Another series gives statistics covering the various stages of agriculture —for example, the value of farms and farm properties; numbers and value of live stock; acreage, production, and value of crops; etc. The bound volumes may be consulted at the leading libraries, and the bulletins are sent gratis by the Census Bureau to all who desire them. The report of the Census of Agriculture presents detailed statistics as to acreage, improved acreage, and value of farms; value of farm property; tenure (whether operated by owner, by hired manager, or by tenant); farm mortgages; race; nativity and tenure of farmers; size of farms; number and value of live stock on farms and elsewhere; live stock products; crops; irrigation, etc.

By an examination of the Census reports on agriculture, the farmer can compare the productiveness of his farm or the average productiveness of farms in his community with the productiveness of farms in other localities in which similar crops are grown; he can ascertain what are the principal products of any state or county in which he may be interested; he can make a comparison of farm values in different localities; and he can obtain information along

many other lines in which the progressive agriculturist is apt to be interested.

Not only are the Census statistics of direct value to the farmer in this manner, but they are of indirect value in that they provide the basis for much of the work done by the Department of Agriculture, including the compilation of its annual estimates pertaining to crop acreage and production of live stock.

The cotton and tobacco statistics, already described are also of great value to those farmers who produce cotton and tobacco respectively.

CHAPTER IV.—CONTROLLING OF DESTRUCTIVE INSECTS AND BIRDS

Bureau of Entomology.

The best methods of controlling insects destructive to agriculture is the most important part of the work of the Bureau of Entomology. The subject of the damage to the health of livestock and to the health of man himself by the carriage of disease through insects is also included in its work.

The Bureau has a number of specialists constantly working in cooperation with the National Museum on specimens of insects both injurious and beneficial. Should any insects not already well known be discovered, their habits are studied for only thus is it possible to obtain clues for their destruction, and their natural enemies are sought out and set to devour them. A great many injurious insects are accidentally imported from other countries and for this experts are sent to the country of their origin to make the necessary investigations that would lead to their eventual eradication.

Extensive experiments in orchards are made to determine species of troublesome insects and the amount of injury resulting from their work. Laboratory observations are checked by extensive obser-

vation in the field and remedial measures are undertaken based on knowledge of the behavior of the insects. Experiments are carried out in the field to determine the comparative value of respective spray treatments and the most effective quantity of poison to be employed. This work is divided into the different kinds of insects known to be destructive to agricultural crops and to fruits and vegetables. Representatives of the Bureau are sent to all parts of the country to investigate the tests of insects under conditions where demonstrations can be carried out on a large scale.

Besides the orchard investigations, experiments are carried on with serial and forage crops, every variety of cotton, tobacco, sugar cane, forest products, etc.

Interesting experiments are being made with regard to stored products and the insects which are the ruination of food supplies, and procedures of packing are recommended which will as far as possible make the products insect proof, methods of fumigation having also been studied.

The Bureau is constantly trying out various insecticides for the insects which affect the heath of man in so far as they transmit disease. This work is carried out in cooperation with the work of the Public Health Service in the rural districts. (See page 107.)

Demonstration work in connection with all phases

Spraying cart used by Bureau of Entomology in operations against the Gipsy and Brown Tail Moth.

of the work of the Bureau is carried on in cooperation with the States Relations Service. (See page 125.)

Bulletins and pamphlets are issued by the Bureau of Entomology for the benefit of the farmer concerning his work.

Insecticide and Fungicide Board.

The Insecticide and Fungicide Board of the United States Department of Agriculture is charged with the enforcement of the Insecticide Act of 1910. The Board consists of four members representing the Bureaus of Chemistry, Plant Industry, Animal Industry and Entomology. Working under these members are groups of chemists, bacteriologists, entomologists, plant pathologists and microscopists, who analyze preparations, test their efficiency and pass upon the claims made for them on their labels.

The Board also can call upon the specialists of the several Bureaus for cooperation in special researches or field or other tests. It employs a clerical force and a number of inspectors whose chief business is to collect samples of suspected preparations as a basis for legal proceedings, should action be warranted.

The Insecticide Act is designed to prevent the manufacture or sale in the District of Columbia or the territories, the interstate shipment and the importation of adulterated or misbranded insecticides and fungicides. The range of substances covered

by the Act is very comprehensive. "Insecticides" besides Paris green and lead arsenates are defined to include all substances or mixtures of substances intended to be used for preventing, destroying, repelling, or mitigating any insects which may infect vegetation, man, animals, or households, or be present in any environment whatsoever; "Fungicides" are defined as including all substances or mixtures of substances intended to be used for preventing, destroying, repelling, or mitigating any and all fungi that may infest vegetation or be present in any environment whatsoever.

The provisions of the law, therefore, are designed to protect farmers and others from fraudulent insecticides and fungicides and other products as well as fraudulent disinfectants. The result of its enforcement has been that farming communities in particular are receiving a much higher grade of insecticides and fungicides of more standard composition. The confidence established by this work greatly encourages the manufacturer in the development of legitimate material and tends to encourage the use by farmers of preparation to combat diseases and insect pests of their crop plants and livestock.

Destructive birds and mammals are a great menace to agriculture.

Important work in connection with these is carried on by the Biological Survey.

The work of this Bureau can be divided as follows: Biological Investigations, Economic Investi-
Biological Survey. gations, Game Preservation (Reservations and enforcement of the Lacey Act) and Enforcement of the Migratory Bird Law.

The Biological Investigations of the Bureau are of a purely scientific character and form the foundation of the other work of the Bureau.

They are made in the form of a survey of all States and Territories to ascertain the distribution, abundance and habits of the birds and mammals and to determine their natural life zones. The information thus obtained is placed at the disposal of individuals as well as public and official bodies interested.

The data secured by these surveys has proved extremely useful in formulating the provisions of the Migratory Bird Treaty in force between the United States and Canada, and in the preparation of many of the game laws of the various States.

Economic Investigations are made regarding the relation of wild mammals and birds to agriculture and methods of controlling the harmful ones.

(a) Experiments in trapping, fumigating, poisoning and other methods of destruction are made. These are reported and demonstrated for the benefit of farmers.

(b) Destruction of predatory animals and suppression of rabies among them. Predatory wild

animals destroy large numbers of livestock, and this has been increased by an epidemic of rabies which is prevalent among them in certain Western States. This disease is especially dangerous, as it can be communicated to human beings and to stock and other domestic animals. The only method for the suppression of the disease is the destruction of the afflicted animals. Hunters are employed in this work and over 30,000 animals were killed last year by trapping, and a still larger number by poisoning campaigns.

(c) Assistance is also given in the destruction of smaller animals, such as prairie-dogs, rabbits, ground squirrels, mice, rats, etc., injurious to crops and farm produce. In the case of National Forests and Public Domain, the work is carried out by field parties of the Bureau. In the case of private lands the Bureau cooperates with individuals and organizations of farmers and demonstrates the methods the Bureau has found most efficient in its work and aids them in organizing campaigns. In 1917, 16,000 farmers in North Dakota cooperated with the Bureau and over four and one-half million acres were practically cleared of ground squirrels, saving a million dollars' worth of crops. Similar campaigns are in progress in many other States.

(d) Investigations are being made by the Bureau to determine what birds are beneficial to agriculture, horticulture and forestry, and which are

destructive. The chief method of procedure here is to examine the stomach contents of the birds of different sections and species. Laboratory analysis shows their contents and thus their powers of destruction to crops, other birds, fruits, insects, etc., can be determined definitely.

The Game Preservation under the control of the Bureau may be said to be divided into two parts: (a) the enforcement of the Lacey Act (Sections 241 to 244, inclusive, of the Penal Code of the United States) and (b) the establishment and maintenance of Mammal and Bird Reservations.

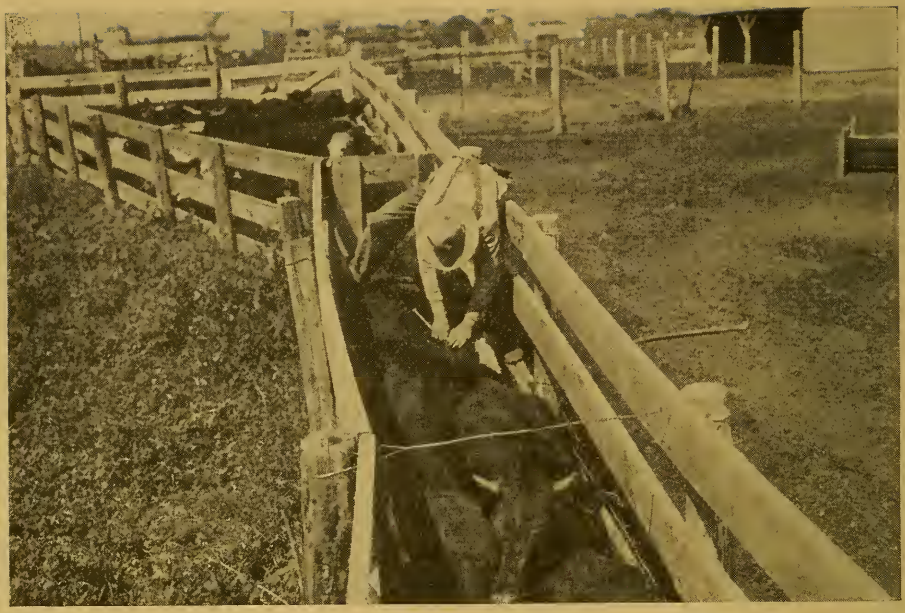
The Lacey Act prohibits the interstate shipment of any foreign animals the importation of which is prohibited, and also forbids interstate traffic in the dead bodies or parts thereof of any wild animals or birds when such animals or birds have been killed or shipped in violation of the laws of the State, Territory or District in which same were killed, or from which the same were shipped. Any evidence against violations of this Act is obtained from individuals, dealers and transportation companies.

Under this Act there is also forbidden the importation of foreign birds and mammals or an injurious species. Permits from the Bureau are required for most birds and mammals before they may enter the country. For this purpose officers of the Bureau are placed at all points of entry.

The Government maintains 74 National reserva-

tions for big game birds. The object of these is to perpetuate the bird life of the Nation as well as game mammals for the benefit of the people from a recreational as well as from an economic point of view. A winter refuge for elk, with sufficient hay for food, is established by the Government to insure perpetuation of the elk.

The Migratory Bird Law is also enforced by this Bureau. In connection therewith information is handed out to the public showing the object and necessity of the law for the protection of migratory birds, and a campaign of education has begun to interest people at large and demonstrate to sportsmen and gunners the necessity for the proper observance of the regulations under the Migratory Bird Law.



Vaccinating cattle against Black Leg with vaccine furnished free of charge by the Government.

Dipping cattle in arsenical solution to kill ticks.

CHAPTER V.—FOSTERING AND IMPROVING OF LIVESTOCK. DAIRYING

Bureau of Animal Industry.

The Bureau of Animal Industry fosters and improves the live stock industry. Its work includes investigations and educational work in connection with the breeding, feeding and management of horses, beef cattle, sheep, goats, swine and poultry. The experiments deal mainly with the broad problems of suitability of types of animals for general areas and conditions affecting breeding and growth in farm animals.

The Bureau also carries on important work regarding animal diseases. This may be divided into scientific investigations, educational work and administrative work in connection with the educational work. The administrative work is performed in connection with the state authorities for the enforcement of Federal and State laws existing for the quarantine of diseased animals. Whole areas have been freed from prevalent animal diseases through the enforcement of these laws combined with the educational work of the Bureau.

Animal diseases are studied by a corps of scientists mostly veterinarians with special training in bacteriology. Information and advice are given to

the public as to the nature of such diseases and how to prevent and treat them in great detail by demonstrations on the part of county agents and extension specialist (see page 125). Publications and correspondence also help to further this work.

Hog cholera, tuberculosis and contagious abortion are subjects which have been especially studied with a view to furnishing stock owners information that will enable them to check and eliminate these diseases. Scabies of sheep and cattle, the exterminating of ticks and other such diseases have been problems which have greatly occupied the Bureau in the regions where they are specially prevalent.

The Bureau maintains a system of inspection and quarantine of imported animals with the object of preventing the introduction of contagious animal diseases from other countries.

It also inspects animals for export from the United States so as to insure the healthfulness of such animals and thereby fosters and protects the foreign commerce of the country.

Animals in interstate commerce are also examined in order to prevent the spread of disease throughout the country.

The Bureau of Animal Industry has a division entirely devoted to dairying which is promoting and assisting to organize the dairy industry in those parts of the country where it is as yet undeveloped. The work may be divided into three classes, namely,

Dairy meeting—how the model of a cow stall was used in discussing model barns.

Poultry and Egg Packing Demonstrating Car of the Bureau of Chemistry. (See page 71.)

Laboratory, Research, Field Research and Dairy Extension.

The Laboratory Research work includes investigations in all that concerns milk (skim milk, buttermilk and condensed milk), various kinds of cheeses (including foreign types), also the manufacture and handling of commercial ice cream.

The Field Research consists of investigations in cow testing associations and bull associations; creamery management (i. e., study of cost of operation, cost of fuel, pasteurization of cream for butter making, etc.); dairy sanitation (a study of the city milk supplies); cost of milk production on the average dairy farm; and the cost of handling milk in cities including the cost of various operations in preparing milk for the market. Experiments are also conducted in the feeding, breeding, housing and care of dairy cattle and handling of market milk.

Extension Work is conducted in cooperation with the Extension Departments of the State Agricultural Colleges and the States Relations Service (see page 125). Men engaged in this work instruct farmers in the feeding of dairy cows, the raising of calves, construction of silos and dairy buildings. They also introduce herd records, give advice in the selection of pure bred bulls and assist in the organization of cow testing and bull associations.

They also give assistance in the organization of creameries and cheese factories.

Bureau of Chemistry.

In the enforcement of the Food and Drugs Act the Bureau of Chemistry often finds that certain milk supply is impure. This is generally due to lack of sanitation, and the inspectors of the Department in such cases investigate the farms from which the milk has been bought. They endeavor to instruct the farmer in modern methods of sanitation so that his milk may be brought up to standard requirements.

Investigations are being made for the benefit of the farmer concerning the utilization of various waste by-products as cattle food. A special investigation concerning forage crops is being made by the Bureau of Chemistry in order to find out their chemical composition and values as stock food.

U.S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN

602

Contribution from the Bureau of Animal Industry, A. D. Melvin, Chief.
August 21, 1914.

PRODUCTION OF CLEAN MILK.

Prepared in the Dairy Division.

Every owner of a dairy herd should consider it his duty to himself and to the community to keep only healthy cows, supply them

FIG. 1.—A clean milker in a clean stable at milking time. Note the clean suit, sanitary milking stool, small-top pail, cow with clean flanks and udder, and sanitary stable construction. Under these conditions it is an easy matter to produce clean milk.

NOTE.—This bulletin is intended to be of especial value to all persons engaged in the production of milk, and also to consumers who are interested in procuring clean, safe milk.

40669°—Bull. 602—14——1

Example of a Farmer's Bulletin.

CHAPTER VI.—GRAZING ON FOREST LANDS AND FOREST FIRE PROTECTION

Along with the timber on national forests there is a great deal of grazing land, about 10,000,000 sheep, goats, cattle and horses grazing under permit annually on the national forests.

Forest Service.

Payment for the grazing privilege is based on a certain fee per head for the grazing season which is considerably less than the fee charged on commercial ranges.

Local settlers, farmers, and stockmen have the first right to the use of the range and every man who raises stock on the forests is allotted a certain area for the grazing season. In this way unfair competition between the big man and the little man is done away with. Under the prevailing proper regulations the range is improved instead of overgrazed and denuded as has been the case with many of the outside public lands.

Each farmer in or near a national forest is allowed to graze free of charge ten head of milch cattle for domestic use.

Wherever the national forests are used for com-

mercial purposes an equitable charge is always made. Forty-five per cent. of this charge goes back into the state where the forest is located for the school and road fund. The remainder goes into the Treasury to offset the cost of administration.

For the farmer who owns timber land the Forest Service conducts a number of special investigations relating to the growth and the management of forests and their utilization in order to determine how different types of forests should be handled.

One of the prime purposes for the establishment of the National Forests is the regulation of stream flow which results in the retarding of soil erosions and the diminution of floods so destructive to farm lands. The forest cover on the slopes serves as a protection to the soil beneath, breaking the force of rain and melted snows which on unforested slopes rush off the surface causing floods and carrying off the soil. On a forested slope the water is absorbed by the humus on the ground, seeps down into the soil which is kept porous by the humus cover and is held together by the interlacing roots of trees, the water thus reaching the springs and streams gradually.

The most important part of the administration of the National Forests is their protection from fire. The average loss to the country in the past through forest fires is estimated at about $25,000,000 yearly. Very few fires on the National Forests gain much

Forest Rangers fighting a fire in the National Forests.

Marking timber for a sale under Government regulation. (See page 237.)

headway, because of the vigilance and efforts of the Forest officers. Every effort is also made to prevent fires from starting.

All during the danger season a thorough fire patrol is maintained, and on the mountain tops are lookout stations where guards watch for fires all day long. When a fire is discovered, headquarters are notified and a crew is sent to extinguish it. If a patrolman finds a small fire he may be able to extinguish it himself; otherwise, he seeks help from other Forest officers.

For effective fire protection in the Forest, two things are necessary: first, a means of speedy communication whereby news of a fire may be spread over a large area and help summoned. This need is being met by the telephone lines which are being strung through the National Forests. Up to June 30, 1917, more than 23,000 miles of permanent telephone line had been installed in these Forests. The lookout stations are equipped with telephone service and the patrolmen are furnished with portable telephones which they carry on their rounds of inspection and which enable them to tap wires at any point. In case of large forest fires, emergency lines are laid from the fighting line to the headquarters or base of supplies. Several miles of this emergency equipment may be strung in a day. Heliographs, for flashing sun messages, are also used as supplements to the telephone.

The second requisite for successful fire protection is that every part of the Forest be made accessible, so that men and fire-fighting equipment may be gotten quickly to the scene of the fire. This need is being met by the trails, wagon roads, and bridges which are being constructed on the Forests. For the past few years about three-quarters of a million dollars has been spent annually in the various states in which the National Forests are located in permanent improvements of this and other kinds, which not only tend toward the protection of the Forests from fire, but facilitate the transaction of other Forest business and make the Forests more useful to the people living in and around them. Nearly 3,000 miles of road and more than 25,000 miles of train were built on the National Forests up to June 30, 1917. In addition to the sums hitherto available, one million dollars a year is to be spent for ten years for road construction in and adjacent to National Forests.

It is only by such means as telephone lines, trails, and bridges that the small force on the National Forests is enabled to protect these Forests so effectively. It is by such means that one Ranger is enabled to care for on an average of over 100,000 acres. These improvements aid the traveler and the settler, facilitate the transfer of grazing stock over the Forests, and in other ways open up these hitherto trackless wildernesses to commerce, the home-

seeker, the prospector, the stockman, the hunter and fisherman and the vacationist.

Different kinds of fires on a National Forest are combated in different ways. A surface fire burning up the litter scattered over the ground or a grass fire may, if caught early, be easily extinguished with sprinklers or by being beaten out with branches or wet gunny sacks or saddle blankets, or may be surrounded by a fire line and allowed to burn itself out. A ground fire, burning in the humus, often unseen, is more difficult to combat. Trenches must be dug down to the mineral soil to prevent its advance. While neither surface nor ground fires consume the trees, they do incalculable damage by burning into the bases of trees, thus giving entrance to insects and fungi, uncovering the roots of trees and destroying young growth.

The most formidable fire, however, is the crown fire, in which the trees themselves burn. In fighting fires of this kind, trees are sometimes felled ahead of the fire and back fires are started in advance, so that the main conflagration may die for lack of fuel. When, however, a forest fire gains full headway, only the merciful elements of heavy rains or reversing winds can stop it. Forest fires have been known to advance over 50 miles an hour and to jump streams half a mile wide. Under circumstances like these, the efforts of man are powerless.

More important than extinguishing forest fires is

their prevention. The Rangers are ever on the alert to prevent forest fires from starting.

Among the permanent improvements made are fire lines, cleared of timber and kept free from brush and other inflammable material, and so constructed that they will prevent the spread of small fires from one part of a forest to another, and serve as lines from which fires can be fought and from which back fires can be set. More than 1,000 miles of fire line has been built on the National Forests.

CHAPTER VII.—RURAL ROADS AND RURAL ENGINEERING

Office of Public Roads and Rural Engineering.

The roads in the rural districts, as well as sanitation and engineering, are attended to by the Office of Public Roads and Rural Engineering.

This Office administers the Federal Aid Road Act, under which the Government has appropriated $75,000,000.00 to cooperate with the several states in the improvement of post roads, and $10,000,000.00 for the improvement of the roads in the National Forests. It collects data on road mileage, revenues and expenditures of each state, conducts studies of costs of construction and maintenance to determine the burden and benefits of improved roads to communities; makes studies of traffic regulations, and the adaptability of road surface types to traffic conditions. It gives assistance to local road authorities by demonstrating proper construction methods and instructs them in the road building art.

In its division of testing it examines bituminous and nonbituminous materials to determine their suitability for use in particular types of road work, furnishes advice on such materials or their use;

conducts research, both in the laboratory and in connection with field work of the Office, to correlate laboratory tests with behavior in service, to develop improved materials or methods of use, to revise present methods of testing and to develop new ones, etc.

The Office also investigates the physical properties of concrete and studies the distribution of pressure through fills and foundations.

In its farm drainage investigations the Office assists farm owners in planning drainage improvements for reclaiming wet areas or improving the crops on the fields that are producing poor or indifferent yields on account of excessive moisture. It gives advice in regard to the feasibility of reclaiming swamp areas and land subject to inundation and gives assistance in planning improvements for some typical areas. In order to benefit land owners, drainage engineers and drainage district officers, it makes studies of construction, operation and maintenance of drainage improvements, including equipment, methods and costs of digging ditches, building levees, and designing drainage pumping plants, farm drains, and arrangement of tile drains.

In farm irrigation investigations, the Office conducts studies into the use of water in irrigation, in looking to the prevention of waste of water and the determination of proper quantities to use for var-

Crops drowned out for lack of drainage.

Good crops on the same land, after tile drainage according to instruction of Office of Public Roads and Rural Engineering.

ious crops under different conditions of soil and climate; the adaptability of methods of distributing water to crops; the measurement of water used in irrigation; the adaptability of pumping machinery to supply water for irrigation and determine the cost of installation and operation of wells and pumping machinery. It also conducts a study of customs, to determine the effect of regulations and law upon the use of water to irrigation farmers.

Through its Division of Farm Engineering the Office advises upon and makes plans for farm lighting systems, water supply systems, sewage disposal, farmstead buildings adaptable to all localities, general farm barns, storage and outhouses, sheep and stock barns, and refrigeration plants, and determines the adaptability of farm machinery for particular use.

Public Health Service.

Rural sanitation is an important part of the work undertaken by the Public Health Service, which visited over 120,000 homes since the three years the work has been carried on. It may be said to consist of:

(1) A determination of causes responsible for insanitary conditions in rural districts and their effect upon the health of the population.

(2) A demonstration to rural residents of how the most prevalent diseases are brought about and how they can be most effectively and economically prevented.

The ultimate purpose of the service is to awaken in rural communities and individuals a communal interest in public health questions which will, in turn, lead to an improvement in sanitary conditions and the maintenance of an efficient local health agency.

The plan for these surveys is to visit as many individual homes as possible, and to reinspect a certain number of homes in different neighborhoods to find out the sanitary improvements carried out; delivery of lectures on sanitation; inspections of public buildings; securing the cooperation of civic organizations and prominent citizens; and surveys of the incorporated towns in the county; and making the civic recommendations to the authorities which will bring about sanitary living conditions.

Numerous publications are issued by the Public Health Service with regard to rural sanitation and concerning the erection of proper sanitary arrangements in homes, the screening of houses, the keeping out of flies and mosquitoes, clean water, etc.

These publications are sent out on request to authorities or separate individuals and are of assistance to the officers in their work.

They are also sent in answer to numerous requests for advice from correspondents inquiries from the rural districts relating to health and san-

itation being greatly encouraged by the Health Service.

Advice on rural sanitation is also given by the Demonstration Agents of the States Relations Service (see page 125).

CHAPTER VIII.—FARM MANAGEMENT.

PROCURING OF FARM HANDS

Office of Farm Management.

All types of farming from a purely business standpoint for the individual farmer, with a view to promoting efficiency and insure profitable operations, are studied by the Office of Farm Management.

It places the information obtained at the disposal of those interested to the end that unsuccessful farms may be converted into efficient and profitable business enterprises.

The field covered by this Office is a very broad one, since the facts to be considered in organizing a farm business under different conditions and in various sections are even more numerous than those involved in other lines of business.

The necessary information is obtained at first hand directly from farms in practical operation. Detailed studies of thousands of farms representing all degrees of efficient and inefficient management, are made by what is known as the "'survey method." This consists of obtaining complete records of the entire business for one or many years of practically all the farms in typical areas of the different farming regions. In this way it is learned which farms

are making a profit and which are not, and the profitable and unprofitable enterprises can be determined. It is also possible to evolve a plan of management which includes only the best practices, and while it may not embody any new or original ideas is based upon the fire-test of actual experience.

Some of the more important factors stulied are:

The type of farming best adapted to varying climatic, soil, topographic or other geographic conditions, and also with regard to market demands and facilities.

The best size of farm for a given type of farming, and the percentage of the total capital which should be invested in buildings, implements and equipment, livestock, power, etc.

The general layout of the farm, that is, the size and arrangement of the fields and the location of the buildings with regard to efficiency and economy in the use of man and horse labor, as well as adaptation to the rotation of crops to be followed.

The best rotation to practise, considering not only the soil conditions and the effects of rotation on the crop yields, but also the market for the different crops, the cost of hauling them, the distribution of man and horse labor with relation to other enterprises, the utilization of present equipment, the requirements of extra equipment, etc.

The size and character of the machine and equipment, as well as their efficient operation and care.

The cheapest source of power for farm operations, that is, whether animal or mechanical power should be used, or a combination of both, and, if the latter, the proper proportion of each. In the case of animal power, the cheapest method of obtaining work animals, that is, whether to raise or buy, and the age at which animals should be sold to maintain the depreciation of a minimum figure.

The most profitable methods of disposing of the different crops, that is, whether to harvest and sell or to feed to stock, and if to feed, the kind of stock to which they should be fed to return the greatest profit; also whether they can be fed more profitably in the field without harvesting than by harvesting and feeding in yards or stables.

The amount of different kinds of live stock which should be kept, considered not only as separate enterprises, but with relation to the disposition of different crops, the manure requirements of the farm, the utilization of products which would otherwise be wasted, the employment of labor, etc.

The most profitable way of utilizing manure, considering the labor involved and cost of equipment, as well as the effect on the various crops in a rotation.

The conditions under which renting a farm is more profitable than owning one, together with the advantages and disadvantages of different forms of tenure.

All of these, as well as numerous minor factors, receive careful study and consideration by the Office of Farm Management in organizing a farm business in accordance with the laws and principles of the science of farm management.

In connection with the work of the Office simple cost accounting systems have been worked out which require a very small amount of time on the part of the farmer but which furnish the necessary data from which to determine the cost of growing various crops, of raising different kinds of livestock and producing live-stock products under different conditions. All items of receipts and expenditures in connection with the farm business, also the labor requirements, both man and horse, for every farm product, is likewise ascertained. Important facts as to the relative efficiency of machines and implements of different sizes, when used under varying conditions, are also disclosed. Hundreds of farmers from all sections of the country are keeping such records of their business and allowing the Office of Farm Management to make copies of them. These records serve the same purpose as the survey records referred to above. They also serve to give to the farmers who keep them a better insight into their own farm business than they had before possessed.

In 1908 the Government decided that it would have to assist the farmer in finding the help he needed.

Department of Labor. The Bureau therefore printed 10,000,000 post cards which were handed to the mail carriers in the rural districts all over the country. It was a double card with answer attached. "If you are in need of labor in any form of any kind—just tell us on the attached post card," it read. The card was then handed back to the mail carrier and the Department learned in detail the labor wants of farmers over the entire country.

This method was continued until 1915, when the labor zones were established. (See page 268.) At this time the employment blanks were placed in all the post offices with notices of this fact posted wherever feasible and in each post office. It was found that this method saved time, for both the workman in want of a job and the farmer in need of labor saw this notice and could on request obtain a blank on which to state their requirements. The address of the "Zone Officer" of the district was written on every blank so that when filled out it could be mailed in an envelope supplied by the Government.

Inf. 28

FARMERS AND OTHER EMPLOYERS | **DO YOU NEED HELP?**

MEN AND WOMEN—DO YOU WANT WORK?

U. S. DEPARTMENT OF LABOR
BUREAU OF IMMIGRATION
WASHINGTON, D. C.

DIVISION OF INFORMATION
ACTING ALSO AS
DIVISION OF EMPLOYMENT AND DISTRIBUTION OF LABOR

Forms of application for use of employers desiring help, and for persons seeking employment, may be had on request from the postmaster or to the officer in charge of any branch post office during office hours, or to a rural mail carrier.

These officers are not required to fill out such blanks.

All applications, when filled out and signed, should be folded and returned to the postmaster, or transmitted through the rural mail carrier; or through the officer in charge of any branch post office, whereupon they will be forwarded to the proper officer of the Department of Labor. When thus returned or transmitted no postage is necessary; otherwise the usual postage will be required.

This service is free to employer and employee.

Approved:

Commissioner General of Immigration.

Secretary of Labor.

NOTICE ISSUED BY THE DEPARTMENT OF LABOR CONCERNING EMPLOYMENT OF FARM HANDS

CHAPTER IX.—MARKETING. REGULATORY MEASURES. RURAL ORGANIZATION

Every phase of marketing and rural organization is investigated and demonstrated to the farmer.

The work may be said to fall under the following headings:

I. Investigations and demonstrations regarding:
   (a) Marketing and distributing farm products
   (b) Food supply
   (c) Cooperative marketing work in various States
   (d) Grain standardization
   (e) Cotton standardization and testing

II. Reporting services regarding:
   (a) The supply, commercial movement, market prices, and disposition of fruits and vegetables, livestock and meats, grain, seed, and hay, and dairy products.
   (b) Cold storage holdings

III. Regulatory work in connection with the enforcement of the Grain Standards Act, U. S. Cotton Futures Act, Warehouse Act, and Standard Container Act.

(*a*) MARKETING AND DISTRIBUTING OF FARM PRODUCTS

Bureau of Markets.

Practical experiments are constantly being made by representatives of the Bureau of Markets all over the country with regard to marketing and distribution of farm products in order that statements and recommendations regarding this matter may be accurate and definite.

These experiments may be classified as follows:

Cooperative Purchasing and Marketing

Many of the most effective economies in marketing can be practised only by very large individual producers or by cooperative association of growers, and for this reason this Bureau has made special study of the subject of cooperative marketing. There are in existence in the United States more than 10,000 organizations of persons engaged in the marketing and distribution of farm products and the purchasing of farm supplies. Many of these associations are not well organized and as much attention is given to strengthening them as possible, personal aid being rendered wherever practicable. Studies are conducted in order to determine the basic factors necessary to the successful conduct of such cooperative enterprises.

Market Business Practise

Poor business methods have been responsible for the failure of many farming enterprises and this Bureau, therefore, has made studies regarding the business practises of cooperative and farmers' organizations and other market agencies in order to devise suitable accounting systems and efficient methods of business practise. Uniform systems of accounts for primary grain elevators, cooperative livestock shipping associations, country creameries, cotton warehouses, fruit and produce associations, etc., have been devised and tried out in actual practise. These accounting systems have been widely adopted. More than 1,100 farmers' grain elevators are now using the system devised for them. Through the use of this system it has been possible to compile exhaustive figures showing the cost of operation in 175 elevators. Constructive assistance is rendered to persons using the accounting systems by representatives of the Bureau, who respond to as many calls of this kind as possible.

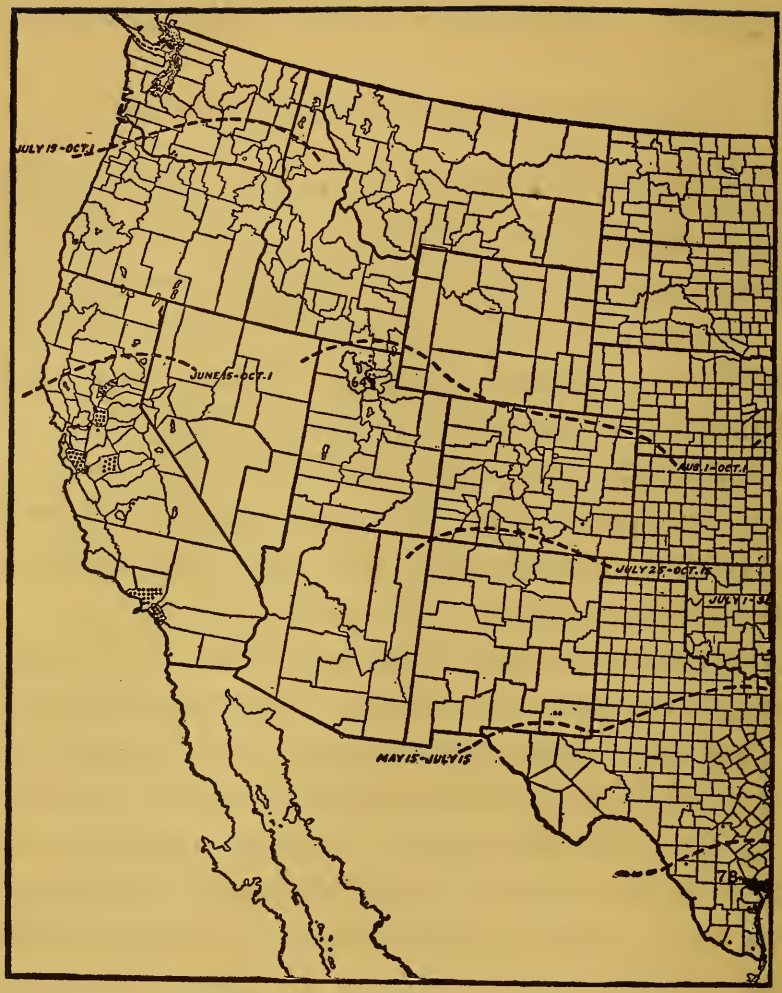
(The Bureau is concerned in this phase of work only in connection with farmers' associations. The office of Farm Management is concerned with the individual farmer. See page 56.)

Market Surveys, Methods and Costs

Surveys are conducted by this project to show areas of surplus production; dates within which specific areas move crops; usual markets to which crops are shipped; volume of movement; the consuming capacities of various markets; the causes of price fluctuations; reasons of market preferences; and like matters. As a result of the studies conducted under this project the data was obtained for use as a basis for conducting the reporting service on fruits and vegetables. (See page 83.)

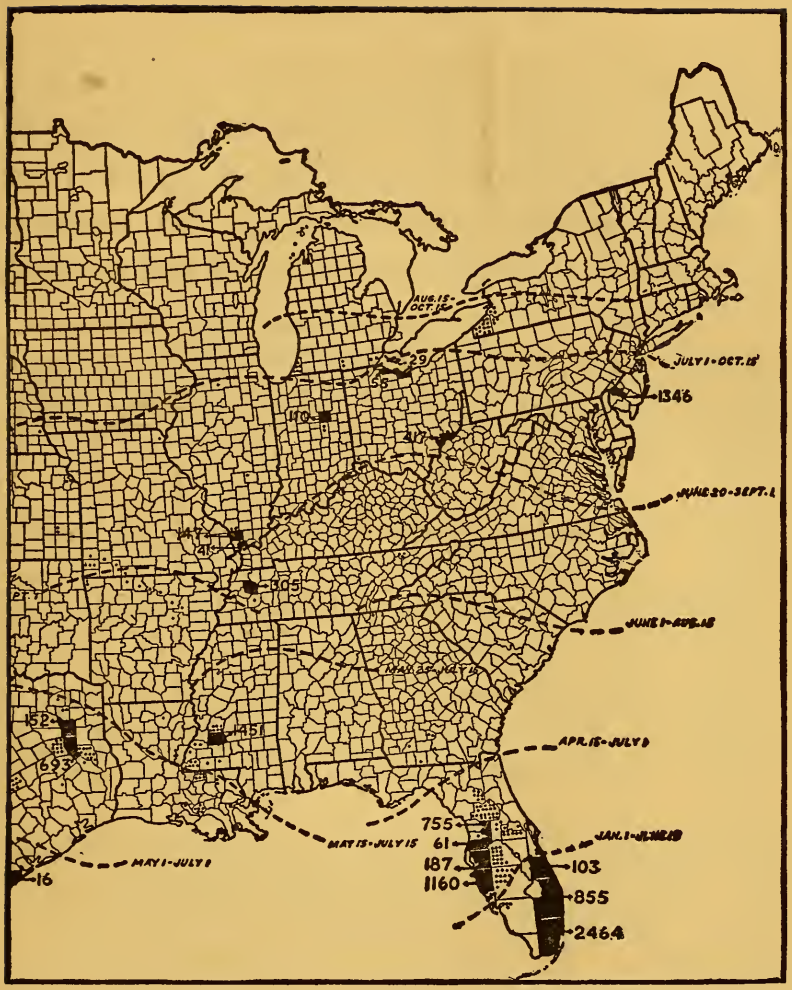
Practically all railroads, boat lines and express companies handling perishable fruits and vegetables are now reporting to this Bureau each carload shipment of such commodities which are made over their lines. Regular reports are received from approximately 10,000 station agents on about 500 transportation lines which represent approximately 250,000 miles out of a total mileage of 260,000 possessed by the railroads of the United States. These reports cover the shipment of about 80 perishable commodities. The statistics obtained in this way will be compiled to show shipments by states, counties and shipping points, and the shipping season for each county, and will furnish a basis for semi-weekly and weekly bulletins supplementing the telegraphic reports.

Statistics are secured showing the number of cars



EXPLANATI

THIS MAP INDICATES ACTUAL SHIPMENTS OF FRESH TO-
DOT REPRESENTS FIVE CARS, OR FRACTION THEREOF.
THE STATIONS ARE LOCATED, THOUGH PRODUCTION
WHERE SHIPMENTS ARE TOO HEAVY TO BE REPRE-
IN AND THE CARS SHIPPED GIVEN IN FIGURES.
THE DATES WITHIN WHICH THE VARIOUS AREAS SHIP ARE
PING AT A GIVEN PERIOD BEING GROUPED IN A ZONE



ON OF MAP

MATOES TO MARKET IN THE SEASON OF 1914. EACH
THESE DOTS ARE GROUPED IN THE COUNTY IN WHICH
DOES NOT ACTUALLY FOLLOW THE COUNTY LINES.
SENTED BY DOTS THE COUNTIES HAVE BEEN BLACKED

SHOWN BY CURVED LINES, ALL OF THE AREAS SHIP-
UNDER THE LINE REPRESENTING THAT PERIOD.

of perishable commodities which have been unloaded day by day in the most important markets of the country. These statistics will show (a) the producing sections supplying each city, (b) the competition from other producing sections, (c) the consuming

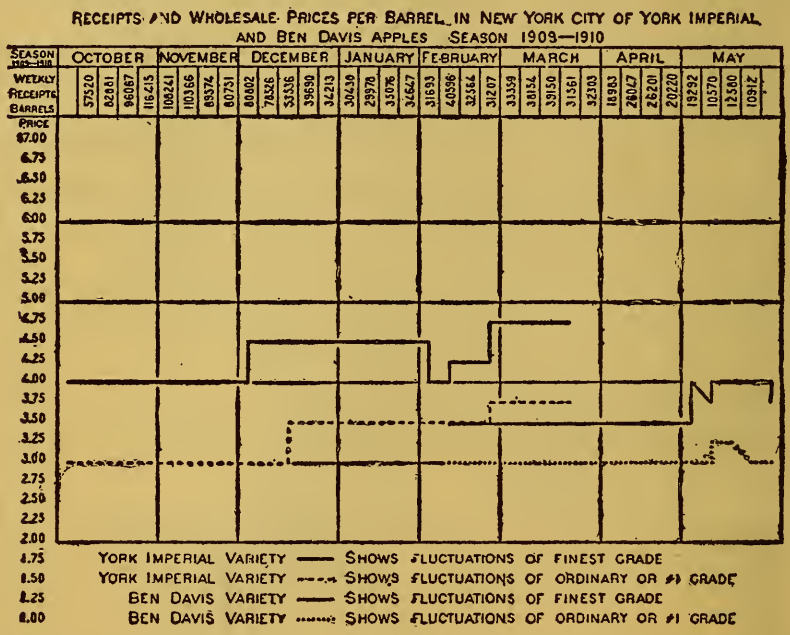


DIAGRAM ISSUED BY THE BUREAU OF MARKETS, SHOWING RECEIPTS AND PRICES OF APPLES

capacity of these markets, (d) the differences in the per capita consumption in different cities.

Market Grades and Standards

Standardization is fundamental to improvement in marketing as, among other things, it establishes a basis for trading, makes for the elimination of fraud

and prevention of waste, creates and maintains confidence, stabilizes the market, and encourages better methods in producing and handling. This Bureau endeavors to develop standards for fruits and vegetables, packages and containers, and to encourage growers and shippers of fruits and vegetables properly to prepare their products for market. Investigations are made of the construction, equipment and management of fruit and vegetable packing houses, the use of mechanical sizing machines and other matters. The data obtained by this Bureau regarding the standardization of packages and containers were used in connection with the enactment of the Federal law concerning this subject which went into effect November 1, 1917. (See page 90.)

Specifications have been prepared for apple grades and for a uniform state apple grading law, which were adopted as a whole or in part by several states. The necessary work has been conducted to enable the Bureau to make recommendations concerning the harvesting, grading and packing of peaches, apples, strawberries and onions, and for packing-house plans, equipment and general methods of handling. Grades for potatoes have been recommended, and have been widely adopted. These potato grades were used in the marketing of the 1917 crop.

Handling Transportation and Storage

Work in determining the factors that govern the successful handling, transportation and storage of fruits and vegetables whereby decay, deterioration and loss may be prevented has recently been taken up by the Bureau of Markets.

However, investigations concerning storage and handling have for some time been carried on by the Bureau of Plant Industry, based on the idea that effective storage can only be of live fruits and vegetables. The Bureau, therefore, studies these to determine the condition under which such products can be successfully stored and handled to market.

Bureau of Plant Industry.

Based on this scientific and technical work, there have been worked out practical methods for the shipping and handling of many agricultural products. Advice on this subject is given to the farmers interested, by leaflets and circulars, and the usual methods of spreading information.

It is evident that successful storage depends a great deal on the storehouses in which the farmer, in the first instance, places his products, concerning which advice is also given.

Extensive investigations also have been carried on by the Bureau of Chemistry with regard to the preservation of poultry and eggs and their products for the purpose of de-

Bureau of Chemistry.

termining the conditions under which they should be shipped; the question has been studied at great length from the killing of the poultry to its shipment.

Transportation conditions have been thoroughly examined and practical experiments made in preparing for shipment, devices being planned to determine the cause of spoiling, breakage, etc.

Elaborate investigations have been made with regard to the storage of poultry and eggs. There have been examined the packing-house methods of chilling poultry, the freezing and drying of eggs and their use by the general consumer, bakers and others, in order to save waste and improve quality.

The Bureau of Chemistry sends out its demonstrators to instruct shippers, carriers and others in the handling of poultry and eggs. Meetings are held at shipping and receiving points presided over by investigators to which all the industry, railroads agents, etc., are invited.

Investigations on a similar important scale have been made with regard to the freezing, transportation and handling of fish. Concerning this industry, see page 226.

Bureau of Markets

Studies are made regarding the relation between the farmer and the railway companies in order to bring about more intelligent and sympathetic cooperation between shippers and carriers. The Bureau un-

dertakes to inform carriers as to the needs of shippers and to give to shippers a better understanding of their rights, duties and joint responsibilities with the carriers in the safe and economical transportation of their products. A campaign is carried on to educate shippers regarding the use of better packages, methods of harvesting, packing and loading, in order to reduce the great loss of foodstuffs in transit. Efforts are being made to encourage the more effective utilization of transportation facilities, to reduce damage claims by inducing shippers to use more care in handling and shipping, and to bring to the attention of railroads the necessity of providing more adequate transportation facilities.

Investigations are conducted regarding the amount, kind and location of all available storage space in the country, the rates charged for its use, etc. Endeavor is made to educate people to the economic value of cold storage; to eradicate the prejudice against foodstuffs properly preserved by cold storage; and to develop closer cooperation in the utilization of the cold storage facilities of the country for the common welfare of all the people in the more efficient conservation of the country's food supply. (For description of cold storage reports, see page 88.)

City Marketing

Much of the waste incident to the present methods of marketing farm products is to be found in the inadequate and inefficient methods now in use in various cities.

If invited to do so by a city, and if conditions are regarded as sufficiently typical, this Bureau makes surveys of marketing conditions in cities in order to give advice and suggestions regarding their improvement. In these surveys, transportation, conditions, demand for farm products, local supply, etc., must be studied.

Plans are prepared for market building and market places which, upon request, are modified to conform to conditions in different cities. Approved systems for the successful administration of markets are designed and model regulations are formulated. Comparative study is made of the service, prices and overhead expenses of various agencies and of city ordinances relating to marketing and distributing farm products. This project has recently inaugurated a local market news service in certain cities. Agents are stationed in these cities to record the amount of each locally grown product brought to market each morning, and post total figures regarding arrivals at as early an hour as possible, in order that they may serve as a guide to buyers and sellers. They secure complete information regarding

prices obtained for various products and prepare a summary regarding these matters for the local press, bringing to the attention of the public products which are in greatest supply.

Marketing by Parcel Post and Express

Improved facilities for selling products of the farm and provisioning the home have been eagerly sought for many years. This work was instituted in order to study the possibilities of marketing from producer to consumer direct, and it has been found that this medium of communication is very useful in enabling the producer to dispose of small quantities of commodities not produced in commercial quantities. A study was made of shipping eggs by parcel post in lots of less than 15 dozen, and the conditions for their successful shipment were determined. Experimental shipments by parcel post also have been made with many other commodities. Field studies of parcel post marketing have been made in certain cities, and in cooperation with the Post Office Department campaigns have been conducted to encourage the use of the parcel post as a medium of marketing farm products.

Cotton Handling and Marketing

The handling and marketing of cotton have been studied in order to improve the commercial practises surrounding the distribution of this crop. Pri-

Cotton Classification Laboratory. Final Inspection of Cotton Standards. Washington, D. C.

A complete set of the Official Cotton Standards of the United States for American White Cotton.

mary market surveys have shown that the price generally received for cotton is not in accordance with its quality, but is based upon average receipts. This practise penalizes the careful grower and encourages careless production. Through these surveys it was possible to determine the quality of cotton grown in different sections of the belt and the methods of handling and marketing that prevail in various sections. The organization of cooperative associations to handle cotton in even running commercial lots, has been encouraged and assistance has been rendered these associations in grading and marketing their crop. It has been demonstrated that the seller who knows the class of his cotton obtains materially better prices by reason of such knowledge, and that large even running lots bring better prices than small lots. Investigations have revealed that the practise of selling cotton in the seed results in enormous loss to the producer and has a tendency to lower the quality of cotton grown. Producers have been urged to use care in picking and handling, and abandon inferior varieties. Moisture tests also have been conducted showing the moisture content of cotton at the gin, compress, and other concentration points.

Cotton Warehouse Investigations

Investigations made by this Bureau concerning cotton warehousing conditions of the United States

demonstrated the existence of ample storage space for cotton, but showed that it was badly distributed and that the conditions under which cotton warehouses are constructed and operated are not standardized. Information has been collected regarding the name, location, capacity, construction and cost of cotton warehouses in the United States, insurance rates, charges, loans, and interest on loans. In addition to the conduct of these surveys a system of accounts has been devised for the use of cotton warehouses (see Market Business Practise, page 64), and studies have been made of state warehouse laws and other matters. The practicability of determining the grade of cotton from gin samples is under investigation. If it could be demonstrated that this method is practicable the necessity for cutting the covering of cotton bales, with the resultant loss, could be avoided. Tests are made to determine to what extent the value of baled cotton is affected by proper protection from the weather and the extent to which such cotton is damaged when exposed.

Marketing Cotton Seed and Its Products

The present methods of marketing cotton seed cause enormous waste. If the large amount of foreign matter now found in this commodity could be eliminated, its quality would be improved and many freight cars now engaged in hauling trash would

be released for important purposes. The presence of the foreign matter found in cotton seed not only causes greater expenditures for transportation than if the seed were clean, but damages the seed materially. Under present conditions, the seller of cotton seed of a good quality often obtains no more for his product than the producer of inferior, dirty seed, which penalizes the careful grower. The Bureau of Markets is urging all persons connected with the distribution of cotton seed to keep it clean and dry, and adopt practical commercial standards. If the present inefficient practises in connection with marketing of this crop can be eliminated, the food and feed supply of the country will be materially increased.

Marketing Dairy Products

(For dairy investigation, see page 42.)

The development of the dairy industry in many sections of the United States is dependent upon the possibility of securing a satisfactory market and the employment of market methods which will insure the producers a profitable return. In order to give advice and assistance the Bureau of Markets conducts investigational work regarding the marketing of dairy products and dairy substitutes, methods and costs of preparing such products for market, market grades and classification of dairy products, etc. Valuable information has been obtained by means

of surveys of the conditions surrounding the marketing of butter, cheese and milk.

The results of the investigations conducted by this project have been used in inaugurating the reporting service on dairy products which has been commenced under the emergency fund.

Marketing Livestock and Meats and Animal By-products

(For work in connection with livestock see page 41.)

The live-stock industry is one of the most important food product industries of the country, and the fact that the meat supply of the nation has not kept pace with its growth, makes the investigation of this subject a matter of great importance. The world's present shortage of meat animals further emphasizes the necessity of obtaining adequate information on this subject.

This Bureau studies such matters as the methods and costs of marketing live stocks and meats, the marketing of live stock in the South, the organization and methods of cooperative live-stock shipping associations and farmers' cooperative packing-houses; the organized facilities and methods of the centralized markets of the United States; the methods and facilities pertaining to wholesale slaughtering and meat packing; the wholesale and retail

Shipping day of Live Stock Shipping Association. Farmers delivering and unloading stock.

Engineer engaged in Water Resources measurements for the Geological Survey. (See page 222.)

prices of meat, and the distribution of packing-house products.

The investigational work done in this condition has constituted a basis for the conduct of the telegraphic news service on the market movement, etc., of live stock and meats. (See page 84.)

Marketing Grain, Seed and Hay

Grain constitutes one of the most important crops of the country and under conditions which are constantly changing, as at present, the need for accurate market information is emphasized. Studies are made of such matters as the primary and terminal marketing of grain, seed and hay, including the cost of marketing, comparison of the services rendered by independent and line elevators and co-operative purchasing and selling associations, and other agencies, future transactions and exchange practises, scalping prices, market quotations, export trade, seed stock records, and other matters.

Foreign Marketing Investigations

Work under this heading has been largely preliminary owing to conditions abroad. As a result of the war, foreign trade in agricultural products has been greatly disturbed and upset and the reconstruction period undoubtedly will develop many new problems. Special study must be made of the foreign marketing of various commodities, such as

grain, grain sorghums, live stock and meats, fruit and wool. The post-war demand for dairy products is to be investigated in order that the American industry may be assisted in meeting the extensive demand which will probably ensue as the result of the slaughter of European herds. Information is to be obtained regarding the cooperative organization of Europe and the laws under which they have been developed. The business practises of such organizations and other marketing agencies under both open account and exception transactions should be studied.

(b) FOOD SUPPLY INVESTIGATIONS

The information obtained through these investigations, which have been instituted recently, are to assist in answering the question, "Who gets the consumer's dollar?" These investigations should form the basis for constructive economic suggestions; should disclose abuses and unfair practises; and should confirm or dispel the suspicion that unfair practises prevail in our system of marketing and distributing farm products. For the present the scope of this work will be confined to live stock and meats, and the most important food-producing grains. Effort will be made to show the character and cost of the services rendered and the profits received by various agencies handling farm products in their progress from producer to consumer, and

to determine the cost of production on the farm.

If undue profits appear to be made by any one factor, an effort will be made to determine whether they are the result of unhindered economic laws or manipulation and artificial control.

(c) COOPERATIVE MARKETING WORK IN VARIOUS STATES

This work is carried on in cooperation with certain states which have appropriated money for marketing purposes. Field agents are stationed in various states and are jointly employed by the states and the Bureau of Markets. These agents direct all of the marketing work undertaken in the state in which they are stationed. There are always a large number of problems which are peculiar to each state and it has been found that they can be best solved by some one thoroughly familiar with local conditions and possessing the viewpoint of the community. A number of state legislatures recently have created bureaus of markets, and in practically all cases have provided that the work is to be done in cooperation with the United States Department of Agriculture. At present work of this kind is conducted in over twenty states.

(d) GRAIN STANDARDIZATION

Investigations are being made by this Bureau to determine the basis for the standardization of grain.

(See also United States Grain Standards Act, page 88.) Standards for shelled corn and wheat established as a result of these investigations are now being enforced in connection with the United States Grain Standards Act. Standards for oats probably will be fixed so as to be used in grading the 1918 crop. In connection with this work experiments are made in the control of smut dust and to ascertain the milling and baking qualities of grain and other matters.

(e) COTTON STANDARDIZATION AND COTTON TESTING

In conformity with the provisions of the United States Cotton Futures Act (see page 89), standards for grade of white and for colored cotton have been established and promulgated. The official cotton standards of the United States have been obtained from the Department by cotton exchanges, cotton firms, cotton mills, and other branches of the trade in this and in foreign countries. Demonstrations are made to show the value of these standards and promote their use, and studies are made regarding their adaptability to trade conditions and other matters. Steps are being taken to prepare standards for Arizona cotton, Egyptian cotton, Sea Island cotton, and standards for length of staples, and the subject of preparing standards for cotton of perished staple, immature staple, ginned cotton, reginned

cotton and for cotton linters is being considered.

Manufacturing tests have been made to determine the waste, tensile strength, bleaching, mercerization and other qualities possessed by the different grades, classes and varieties of upland and staple cottons in order to determine their commercial and manufacturing values.

II. REPORTING SERVICE

(a) The following periodical reports are issued by the Bureau of Markets:

Any series of these reports will be sent free of charge to all persons who show a need of them, upon receipt of request. Telegraphic reports will be sent "collect."

Fruits and Vegetables

Daily Market Reports of Perishable Fruits and Vegetables. These reports are issued from permanent stations in most of the more important markets and from numerous temporary field stations in various producing areas during crop movement. They contain:

1. Telegraphic reports from all principal markets giving the number of cars of each commodity unloaded daily, the origin of these commodities, prevailing jobbing prices, quality and condition of receipts, and marketing and weather conditions.

2. Telegraphic reports from all railroads handling the crops in question, giving shipments from each state or district up to midnight of the night before.

3. Numerous f. o. b. prices from the Bureau's representatives in producing territory.

Weekly Carlot Summaries. These reports give the total number of cars shipped from each state by days and weeks, as reported telegraphically daily to this Bureau by the transportation companies. (Of primary interest to newspapers and statistical students.)

Weekly Market Review. This review summarizes the trend of shipments and market prices for perishable fruits and vegetables as given in the daily telegraphic reports. (Of primary interest to newspapers and trade papers.)

Livestock and Meats

Daily Market Reports on Meat Trade Conditions. These reports show prices, supply, demand and trend of the market for beef, veal, pork, lamb and mutton in Boston, New York City, Philadelphia, and Washington, D. C. They are issued early each morning from local offices of the Bureau at those points and at Chicago, Fort Worth, Kansas City, Omaha, and Portland, Oregon.

Daily Market Reports on Wholesale Meat Prices. For western dressed beef, mutton and lamb in Bos-

ton, New York City, Philadelphia and Washington, D. C.

Daily Reports on Live Stock Loadings. These reports show the number of cars of each kind of live stock loaded the day previous in the United States west of the Alleghany Mountains, classified by destinations, also tabulated by state origins for a number of the larger market centers. The loading reports are issued early each morning from the same offices which issue reports on meat trade conditions.

Weekly Summary of Meat Trade Conditions. Bulletins are issued on each Saturday morning giving a review of market supplies, demands, and prices of beef, veal, pork, lamb and mutton at Boston, New York City, Philadelphia and Washington, D. C. They are distributed from the above named local offices.

Monthly Receipts of Live Stock at Stock Yards. Bulletins are issued shortly after the first of each month showing the receipts during the preceding month of cattle, hogs, sheep and horses at some 60 stock yards representing over 50 cities. They are transmitted to the above mentioned local offices by leased wire and released simultaneously from all offices.

Monthly Shipments of Stockers and Feeders. These reports, which are issued shortly after the first of each month, show the number of head of cattle and sheep shipped during the preceding month

from some 25 market centers for feeding and grazing purposes.

Wool

Quarterly Reports on the Supply of Wool. These reports show the supply on hand June 30, September 30, December 31 and March 31, of all classes and grades of wool, top and noils, both foreign and domestic. The data also are tabulated by states and by cities. The first report was issued as of June 30, 1917.

Dairy Products and Oleomargarine

Monthly Reports on Manufactured Dairy Products and Oleomargarine. These reports show the quantity of butter, cheese, condensed milk and other dairy products, as well as oleomargarine, manufactured in each State, and the production for the corresponding month of the previous year. The first report covers the month of September, 1917.

Grain and Hay

Biweekly Grain and Hay Market Reports. These reports are issued biweekly for the Middle Atlantic Division, which includes Delaware, Maryland, Virginia, West Virginia, North Carolina and South Carolina. They show stocks on hand, prevailing prices and demand for wheat, corn, oats and hay. Special reports on other grains and market conditions usu-

ally accompany these reports. Similar reports will be issued for the North Atlantic, Southeastern and Southwestern Divisions beginning November 15, 1917. (This is being considered.)

Seeds

Monthly Seed Information Bulletin. This bulletin will be issued each month and at such other times as may seem desirable. It will give information regarding receipts, shipments, prices, qualities, supply of and demand for seeds obtained through the Seed Reporting Service. It will report the official activities of the Department Seed Stocks Committee, and will contain seed information from other branches of the Department.

Beans

Semiweekly Market Reports on Dry Beans. A special semiweekly market news service on dry beans, including navy, pinto and related varieties, was inaugurated October 3, 1917, and reports are issued Wednesday and Saturday of each week. Jobbing and carlot prices as well as arrivals are obtained from the following markets: Pittsburgh, Chicago, Boston, New York City, Buffalo, Philadelphia, Fort Worth, Dallas, Denver, St. Louis, Kansas City, and Rochester. The reports also cover shipping point information in Colorado and New York.

(*b*) *Monthly Reports Showing Cold Storage Holdings* of the following perishable commodities in the United States are being issued:

Box apples	Dry salt pork
Barrel apples	Sweet pickled pork
Case eggs	Lard
Frozen eggs	Lamb and mutton
American cheese	Broilers
Creamery butter	Roasters
Packing stock butter	Fowls
Frozen beef	Turkeys
Cured beef	Miscellaneous poultry
Frozen pork	Frozen fish (25 classes)

III. REGULATORY WORK

Regulatory measures in connection with marketing are the following:

Grain Standards Act

Bureau of Markets.

The enforcement of the United States Grain Standards Act involves the fixing of standards for grain, and the promulgation of rules and regulations for the enforcement of the Act; the issuance of licenses to persons qualified to inspect and grade grain, and the determination of their competence; the hearing and determination of disputes which are referred to the Secretary under this Act; and the supervision of the

inspection of grain in order to secure the accurate application of the official grain standards. As mentioned under Grain Standardization (page 81) standards have been fixed for shelled corn and wheat, and probably shortly will be fixed for oats.

For the purpose of administering this Act the country has been divided into 35 supervising districts with a supervisor and headquarters in each district.

Cotton Futures Act

The enforcement of the Cotton Futures Act involves the fixing of standards for cotton (see Cotton Standardization, page 82), and the promulgation of rules and regulations under which the Act is enforced; the hearing and determination of disputes as to the grade, quality, and length of staple of cotton, tendered in settlement of future contracts made in compliance with this Act; the investigation of future markets for cotton to ascertain how accurately their future quotations reflect spot values, and other matters; and the preparation and distribution of practical forms of the standards fixed and promulgated. As mentioned under Cotton Standardization (see page 82), standards have been fixed for grade of white and for colored cotton. Fifteen cities have been named as bona fide spot markets and eleven of these are used for ob-

taining commercial differences as required by the Cotton Futures Act.

United States Warehouse Act

This act differs from the cotton futures, grain standards, and standard container laws in that it is permissive—not mandatory. Its main purpose is to establish a form of warehouse receipts for cotton, grain, wool, tobacco, and flaxseed, and to make these receipts easily and widely negotiable as delivery orders or as collateral for loans. The work in connection with its administration involves the inspection and classification of warehouses applying for licenses and the licensing of those found suitable for the proper storage of cotton, grains, flaxseed, wool, and tobacco; the licensing of persons qualified to act as warehousemen under this Act, the duties of warehousemen and the conditions of the bond required of them must be prescribed. Rules and regulations under which this Act will be administered, with respect to cotton, are now being formulated.

Standard Container Act

This Act became effective November 1, 1917, its object being to fix standards for Climax baskets for grapes, and other fruits and vegetables, and to fix standards for baskets and other containers for small fruits, berries and vegetables. Rules and regulations for the enforcement of this Act have been

established and promulgated. Under it, it is unlawful to manufacture for shipment in interstate commerce, or to ship in interstate commerce either empty or filled containers which do not comply with its provisions.

It is thought that this act will do much to demonstrate short measure packages and voluntary compliance with its provisions will be obtained as a result of educational work conducted by the Department, trade papers, package manufacturers and others.

Bureau of Markets.

The Bureau of Markets has cooperated with state and local agencies in the conduct of social and economic surveys regarding rural organizations in local communities for a number of states and has prepared survey blanks suitable for such investigation, which will be supplied upon request.

The Bureau has issued bulletins discussing the principles and practises of successful rural organization. It has also prepared articles and by-laws for farmers' community clubs organized for the discussion of problems of general community interest—both social and economic.

A study has been made regarding the social, educational, and recreational features of community and county fairs, with a view to suggesting improvements in the organization and arrangement of such fairs.

The Bureau of Markets has also made a study of rural social center activities. Rural community buildings have been studied at length and valuable information obtained with reference to the cost, financing, maintenance, management, and activities of such building enterprises in various parts of the country.

CHAPTER X. FARM FINANCE

The Department of Agriculture for some years prior to 1916 conducted extensive investigations regarding conditions and facilities for farm mortgage credits in the United States. The result of these investigations were published with detailed diagrams showing the rates of interest and commissions throughout the various states.

Federal Farm Loan Bureau. The Treasury.

Two commissions appointed to investigate conditions bearing on cooperative farm credits in European countries made reports and recommendations to Congress with reference to congested legislation. With the aid of the Department of Agriculture and the above-mentioned commission, there was passed on the 17th of July, 1916, the Federal Farm Loan Act, which established a system of twelve Federal Land Banks, as follows:

District 1. Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New Jersey, New York.

BANK at SPRINGFIELD, MASS.

District 2. Pennsylvania, West Virginia, Virginia, Delaware, Maryland, District of Columbia.

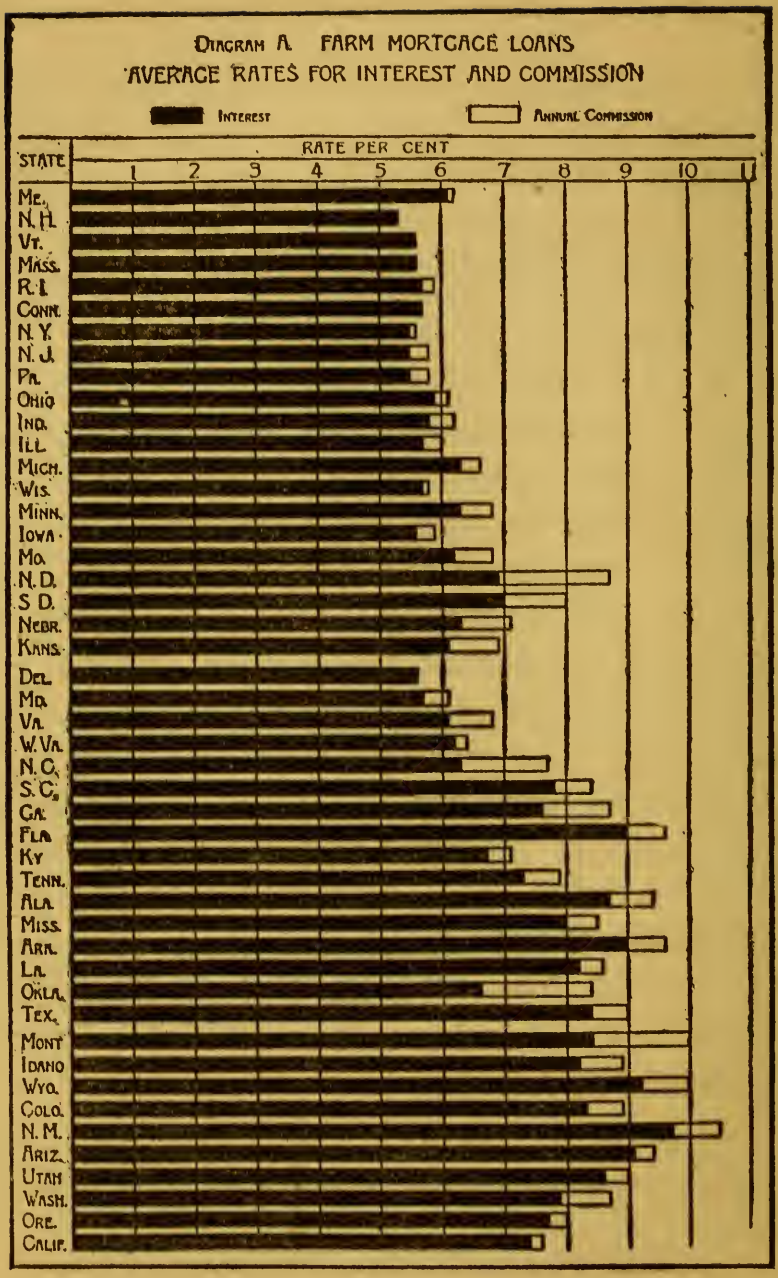


DIAGRAM SHOWING RATES OF INTEREST IN THE VARIOUS STATES.

BANK at BALTIMORE, MD.

District 3. North Carolina, South Carolina, Georgia, Florida.

BANK at COLUMBIA, S. C.

District 4. Tennessee, Kentucky, Indiana, Ohio.

BANK at LOUISVILLE, KY.

District 5. Louisiana, Mississippi, Alabama.

BANK at NEW ORLEANS, LA.

District 6. Illinois, Missouri, Arkansas.

BANK at ST. LOUIS, MO.

District 7. North Dakota, Minnesota, Wisconsin, Michigan.

BANK at ST. PAUL, MINN.

District 8. South Dakota, Wyoming, Nebraska, Iowa.

BANK at OMAHA, NEBRASKA.

District 9. Colorado, New Mexico, Kansas, Oklahoma.

BANK at WICHITA, KANS.

District 10. Texas.

BANK at HOUSTON, TEXAS

District 11. California, Nevada, Utah, Arizona.

BANK at BERKELEY, CAL.

District 12. Washington, Montana, Oregon, Idaho.

BANK at SPOKANE, WASH.

According to this Act farmers desiring loans are required to become members of local national Farm Loan Associations. However, every farmer in the United States is included in the territory of one of the above mentioned twelve Federal Land Banks. Every farmer, therefore, will have access to a loan under the Act, provided he complies with the conditions provided by the law. The Federal Land Bank system is designed as far as possible to do away with the old farm mortgage system, under which the borrower often paid excessive rates of interest and commissions, with additional charges.

Under the system of the Federal Land Banks no loan is permitted at a rate of interest exceeding six per cent. The rate of interest charged the borrower must not exceed by more than one per cent. the interest paid on bonds which the Federal Land Banks are authorized to issue. Not only is the rate of interest limited to six per cent., but provision is also made so that the farmer escapes the annoyance and expense of bonuses and commissions.

The actual rate of interest charged the farmer for the first year is at a uniform rate of five per cent.

Under the law these loans are to be made in periods of not less than five nor more than forty years. In actual practise this is usually thirty-six years.

Each loan must make provision for annual or

semi-annual payments on its principal so calculated that the debts will be entirely paid at the end of the period. After a loan has run for five years the borrower is given the option of paying any additional sum on the principal in multiples of $25.00 on any interest date. The following table will give an idea of the manner in which the debt is paid off. It shows the annual payments applied on a

Completed years	Interest at 5 per cent.			
	Payment	Interest	Applied on principal	Principal still unpaid
1	$80.24	$50.00	$30.24	$969.76
2	80.24	48.49	31.75	938.01
3	80.24	46.90	33.34	904.67
4	80.24	45.23	35.01	869.66
5	80.24	43.48	36.76	832.90
6	80.24	41.65	38.59	794.31
7	80.24	39.72	40.52	753.79
8	80.24	37.69	42.55	711.24
9	80.24	35.56	44.68	666.56
10	80.24	33.33	46.91	619.65
11	80.24	30.98	49.26	570.39
12	80.24	28.52	51.72	518.67
13	80.24	25.93	54.31	464.36
14	80.24	23.22	57.02	407.34
15	80.24	20.37	59.87	347.47
16	80.24	17.37	62.87	284.60
17	80.24	14.23	66.01	218.59
18	80.24	10.93	69.31	149.28
19	80.24	7.46	72.78	76.50
20	80.33	3.83	76.50	.....
Total	$1,604.89	$604.89	$1,000.00	.....

loan of $1,000.00, running for a period of twenty years with interest at five per cent.

This method of repaying loans has a two-fold advantage. It encourages the borrower in habits of thrift, through the requirement of a systematic plan of paying off his debts, and at the same time it makes it possible to place the farmer's loan at a lower rate of interest. The gradual reduction of the principal constantly improves the security for the balance.

These loans under the Federal Farm Loan Act in many cases assist tenants and other landless men in the purchase of farms. For a loan amounting to fifty per cent. of the value of the farm may be obtained on conditions which make it possible for the borrower to repay the indebtedness out of the farm income. Many farmers will find it advantageous by reason of the better terms offered to borrow money under the new system in order to pay off their existing indebtedness. Other farmers will be enabled to make needed improvements which they have hesitated to undertake before on account of the difficulty of obtaining loans on acceptable terms.

In order to obtain a loan from a Federal Land Bank the borrower must agree to use the proceeds of the loan for one or more of certain objects specified in the Act: for the purchase of land for agricultural use, for equipment, fertilizer, and live stock

for the land mortgaged; for buildings and other permanent improvements on the said land; or, with certain limitations, for the payment of indebtedness.

The borrower must furnish as security a first mortgage on farm land. The amount of the loan must not be less than $100.00 nor more than $10,000.00. The loan must not exceed fifty per cent. of the appraised value of the farm lands, and twenty per cent. of the value of the permanent improvements adequately insured. The borrower must be engaged or about to be engaged in the cultivation of the farm mortgaged.

He will also be required ordinarily to become a member of a local National Farm Loan Association.

In order to form a local National Farm Loan Association the following steps are required:

At least ten prospective borrowers are necessary in order to organize a local National Farm Loan Association. The aggregate amount which they wish to borrow must not be less than $20,000.00. Every member is required to subscribe for shares of stock in the association ($5.00 shares) equal in amount to five per cent. of his proposed loan.

Each association has a board of not less than five directors, which board elects a president, a vice-president, a secretary-treasurer, and a loan committee of three members. These officers, except the secretary-treasurer, must be part of the association.

The Federal Farm Loan Board will supply model forms for articles of association and by-laws, application blanks for loans, and other necessary papers. After the articles of the association are signed by the members they must be forwarded to the Federal Land Bank of the district. These articles of association must be accompanied by a written report of the loan committee, such committee having previously appraised the farm land security offered by each member, and having duly indicated its approval on the application blank of each member.

The Loan Association is required to subscribe for shares of stock ($5.00 shares) in the Federal Land Bank equal in amount to its own shares, and this subscription for stock in the Federal Land Bank must accompany the other papers.

After a Federal Land Bank has received such articles of association with the accompanying affidavit and stock subscription, the directors of the said Federal Land Bank are required by law to send an appraiser to investigate the solvency and character of the applicants, and the value of their lands, and to determine whether in their judgment a charter should be granted to the Association. If the decision of the directors of the land bank is unfavorable, the charter will be refused. If their decision is favorable, the charter will be granted by the Federal Farm Loan Board, unless good cause can be shown for refusing it.

Each Federal Land Bank will be an institution upon which the farmers of the district can rely at all times as a source for mortgage loans, provided they comply with the provisions of the law. To this institution the farmer can turn for loans, not only in normal times, when there is a relatively good opportunity for obtaining investment capital, but also in times of stringency when even the farmer with well established credit often finds it difficult to obtain loans on reasonable terms.

The Government has made extensive investigations relating to the factors affecting interest rates and other charges on short-time farm loans. The results of these investigations were published in bulletin form and tables were given showing interest rates and other charges on short-time loans by states and districts as well as for the country on the whole. These showed that climate and soil exert a relatively permanent influence upon the interest rate and other charges.

The Government has endeavored to encourage improvement in the farmer's personal credit, partly by amending existing banking laws, and partly by educational and demonstration work. A special clause was included in the Federal Reserve Act, which permitted a Federal Reserve Bank to discount longer time paper for agricultural purposes than is allowed in the case of commercial or industrial paper. The reason for this is the following:

The financing of agricultural enterprises is known to acquire longer time, on the average, than that of ordinary commercial transactions. Thus, whereas commercial and industrial paper is usually made out for thirty, sixty or ninety days, agricultural paper more often runs for a longer period owing to the seasonal character of agricultural enterprises. Federal Reserve Banks are authorized to rediscount certain kinds of notes, drafts, and bills of exchange, when endorsed by member banks. When such paper is for agricultural purposes, or is based on live stock, it may be accepted for rediscount provided it runs for a period not to exceed six months. However, all paper for commercial and industrial purposes must have a maturity not exceeding ninety days, in order to be eligible to rediscount.

The importance of the rediscount privilege through Federal Reserve Banks lies in providing such paper with a wider market than is afforded by local banks.

Bureau of Markets. The Federal Government carries on investigations and demonstration work for the improvement of the farmer's personal credit.

The Department of Agriculture through its Bureau of Markets has suggested articles of agreement for farmers who desire to improve their credit through organization.

In some cases where conditions are feasible the

department has prepared to give active field assistance in organization for credit improvement.

Two general methods of organization recommended may be noted:

That of temporary agreements with existing loan agencies—such agreements terminating with the payment of the loan.

Permanent articles of agreement among the farmers themselves by cooperative credit associations.

With regard to temporary agreements with existing loan agencies three different ways are suggested. Each of these plans has enabled farmers to borrow money at reduced rates of interest, and on more favorable terms of repayment than are usual.

The three forms of temporary agreements suggested run as follows:

(a) That farmers enter into an agreement with local bankers or with other persons who supply the loans to adopt a uniform and approved system of some farm improvement. The security given by the farmers is not different from that usually required. In the case of dairy stock those supplying the funds usually buy the stock for the farmers. As a matter of fact, those persons furnishing the funds also buy the stock in every case, usually under the advice of specialists connected with the State or federal Government. The stock thus bought is then sold to the farmers at actual cost, plus a certain percentage to cover incidental expenses.

The lender takes in payment the farmer's personal note with or without endorsement or with mortgage security on the stock purchased.

Under this plan, as worked out in certain localities in North Dakota, the farmer has borrowed money on his personal note with interest at eight per cent., whereas the usual local rate is ten or twelve per cent. The notes were drawn for periods varying from six months to a year, but permitted renewals and partial prepayments on the principal.

(b) Under this plan additional security is supplied by having the farmers collectively assume a certain guarantee for the notes given by the members under the agreement. An illustration of how this has worked out is afforded on an irrigation project in southern Montana. Nineteen farmers organized an association and appointed trustees to represent the association in dealing with a local bank. The trustees were authorized to guarantee a limited amount to the bank on the joint and several liability of the associate members. By adding this guarantee to the security offered by the individual farmers, the latter were able to secure the necessary capital for the purchase of two carloads of heifers which were shipped in from another state in August, 1913.

(c) If, in place of the limited guarantee supplied by farmers themselves jointly, as described in plan (b), a similar guarantee from a third party be

submitted, the essential features of a third plan will be the result.

Such a project was carried out in northwestern Wisconsin in the spring of 1913 and in northeastern Minnesota in the winter of 1914. The third party consisted of local business men who realized their common interest with the farmers in the general improvement of agricultural conditions in their territory. One agreement was made between the farmers and trustees appointed by bankers, and another agreement between the trustees and business men. The latter subscribed a certain percentage of the funds loaned, with the understanding that the money was to be a guarantee fund to protect the bankers. The first purchase made under this plan in northwestern Wisconsin included several carloads of dairy stock.

The Government has issued a bulletin showing the need of cooperative credit associations in the United States, such as already exist in Europe and Canada.

In this bulletin it is pointed out that there are many farmers who realize the importance of improving their equipment and farm methods but who lack the capital required to make the desired changes. At the same time the terms on which they may be able to borrow the necessary funds are not such as to encourage the use of a loan. Where a group of neighboring farmers are thus similarly sit-

uated a cooperative credit association may supply the needed additional security by placing the collective good will of the group behind each of the members.

Such an association would also provide for the accumulation and use of local savings, afford training in business habits and procedure, supply a collective fund for agricultural purposes and render service to its members in other ways.

The Government is making a special study of this subject with a view to encouraging the extension of this form of organization among farmers who desire to improve their personal credit.

The Bureau of Markets is prepared to render active field assistance to farmers who desire to organize Farmers' Mutual Insurance Companies. Detailed field studies in all parts of the United States have already been made and bulletins issued.

A set of farmers' by-laws for Mutual Fire Insurance Companies has also been prepared and is included in a bulletin dealing with this subject.

CHAPTER XI. INVESTIGATIONS CONCERNING DISEASES PREVALENT IN RURAL DISTRICTS

Public Health Service.

The Public Health Service does important work with regard to diseases prevalent in rural districts.

In certain of these there is a proportion of 40 per cent. of malaria, which is prevalent wherever the malaria mosquito exists (see page 34). This disease has been a great misfortune to the farmer both in regard to his health and the value of his farm lands. Land which should be worth from $50.00 to $60.00 an acre has oftentimes been reduced to $15.00 or $20.00, if infested with mosquitoes. Investigations have been carried on by the Service in cooperation with the health authorities of the localities concerned, and many areas drained, oiled, and otherwise treated, these measures serving as examples for other communities.

Studies were made and controlled measures undertaken of the several species of mosquitoes prevalent, their selection of breeding places, flight, habits in relation to man, attraction and repulsion, geographical distribution, etc. In the hospitals cases

of malaria were studied with reference to immunity, effect of remedies and their methods of administration. Economic studies in connection with field surveys were also made and data from all available sources, including insurance companies, were selected.

Specially infested regions were the rice-growing districts, where it is necessary to flood the fields for the development of the crops. This operation is an important cause for the breeding of mosquitoes and the rice-growing districts have therefore interested the Service.

Popular bulletins and pamphlets have been issued by the Service for the benefit of farmers, such as "Malaria—lessons on its cause and prevention," "Malaria Control—drainage as an antimalarial measure," "What the Farmer Can Do to Prevent Malaria," "Antimalarial Measures for Farmhouses and Plantations," "Demonstrations of Malaria Control," "Screening as an Antimalarial Measure," "Prevention of Malaria—suggestions on how to screen the home to keep out effectively the mosquitoes which spread the disease," "Control of Malaria—oiling as an antimosquito measure."

Another disease prevalent in the rural districts is pellagra, which is often the cause of insanity. Investigations have been made by the Service and it has been found that the disease is due to the unbalanced diet often customary with inhabitants

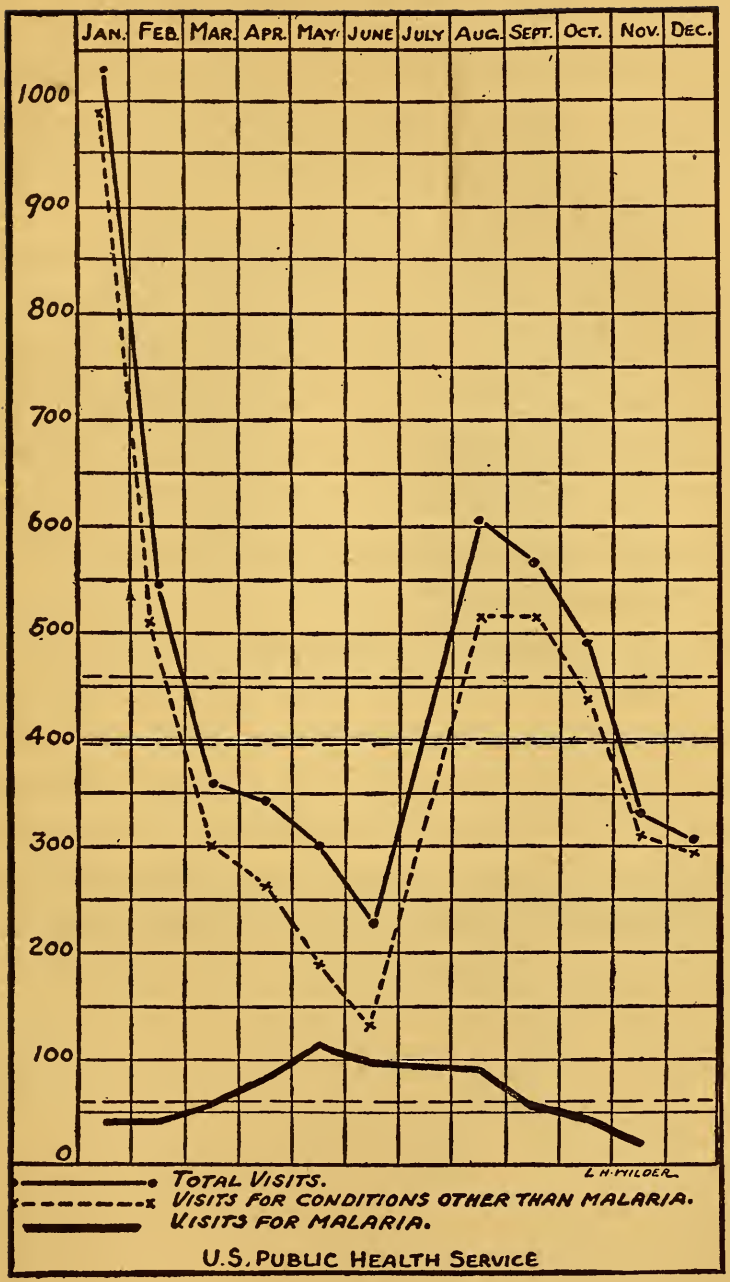


CHART SHOWING HOW MALARIA WAS REDUCED IN 1916 AFTER MEASURES INSTITUTED BY U. S. PUBLIC HEALTH SERVICE.

of the country districts, where in certain parts it causes more deaths than tuberculosis. Great efforts are being made to educate the people to a well-balanced diet.

The Public Health Service has done very important and humane work in the Appalachian Mountains and other rural districts where the inhabitants suffer from trachoma, a contagious disease of the eyes which frequently ends in blindness. Small hospitals were established in districts known to be infected, which proved the best method of curing and preventing the disease, 20,000 cases having been treated with success. The longer these hospitals are established, the more the people understand their importance and necessity. They have proved centers for creating interest in public health generally, the doctors and nurses teaching their patients that trachoma and many other such ills are due solely to unwholesome living and are entirely preventable.

Field clinics are held as a means of carrying on cures and prevention in various infected localities. In these temporary hospitals, which are frequently improvised, the officer performs operations for relief of cases, leaving at his departure a trained nurse in charge of the work.

Another infectious illness prevalent in rural districts and under investigation by the Public Health Service is Rocky Mountain spotted fever. In the

These two men led each other to the Hospital of the Public Health Service and went home cured.

Operating on trachoma patients at a Trachoma Clinic. U. S. Public Health Service.

Bitter Root Valley certain districts, owing to its prevalence, were almost uninhabitable, and the rich fertile land found there had decreased in value from $100.00 or $125.00 per acre to $15.00 per acre. The Health Service is using every effort to combat the fever through the education of the people as to the mode of transmission of the disease, which has been found to be due to tick bites, and the precautions which should be taken for its prevention. The Service is also making efforts to secure from the state authorities the enactment of proper laws and regulations restricting the grazing of horses and cattle in order to reduce the breeding of the ticks.

CHAPTER XII. COURSES FOR PARENTS ORGANIZED BY THE BUREAU OF EDUCATION

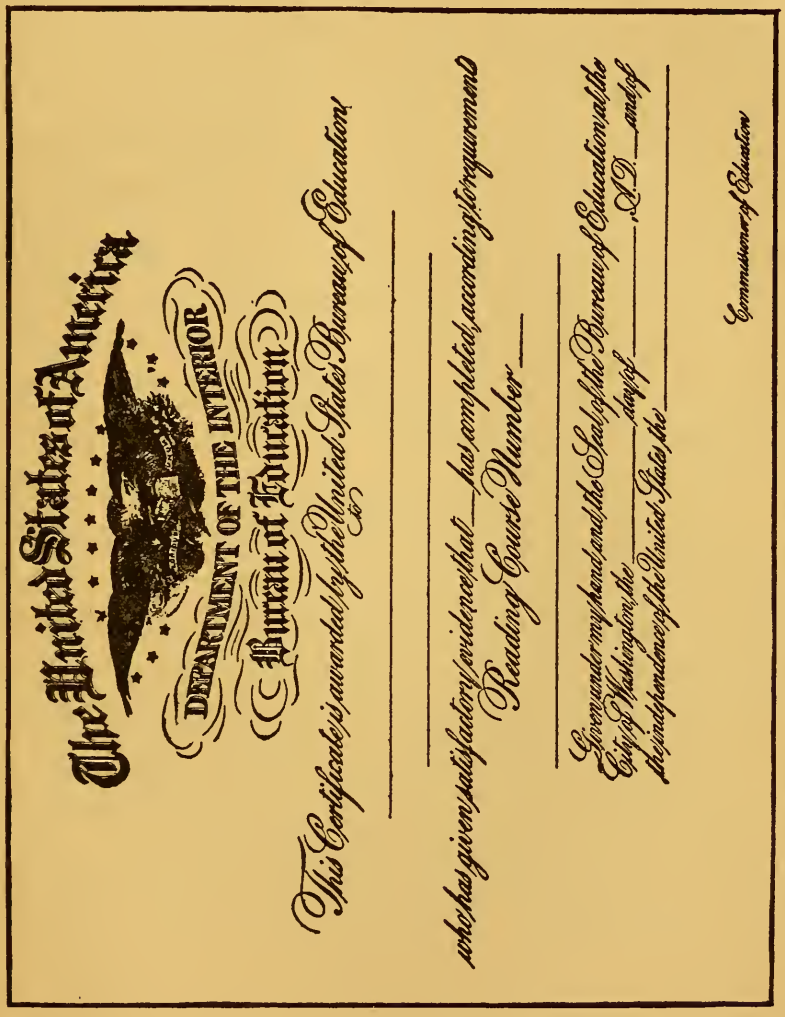
Bureau of Education.

The reading courses organized by the "Home Education" Division of the Bureau of Education are an important method of helping parents to further their own education.

Parents wishing to take such a course write to the Division for enrolment blanks. A list of books with directions how to proceed is then sent, the list having been selected by a committee appointed for that purpose. It includes books on the physical care of the child, its moral development, every phase of homemaking and a few books of fiction. After the books have been read the Bureau requires that a few simple questions concerning them should be answered, thus showing the amount of care with which they have been studied. If these are satisfactory a certificate signed by the Commissioner of Education is sent to the applicant confirming her as being a member of that particular reading circle.

The reading courses are started through the schools, through publicity in the newspapers and magazines, by the Parent Teacher Associations and other educational bodies.

In connection with these reading courses the Division carries on a direct correspondence with the parents who desire information regarding the fur-



CERTIFICATE GIVEN TO MEMBERS OF READING CIRCLES.

thering of their own education and the upbringing of their children. The importance attached to this work and its personal character can be seen from

innumerable letters received from the remotest country districts which run in the following strain:

> "I am a widow 54 years of age. My seven children are grown. All of them are graduated from High School, and those who wished to do so from College. I have been housekeeper, Mother and part of the time, breadwinner for the family more than thirty years, but now with the children grown and beginning to make homes for themselves, I must have something to keep my interest up in living and I do not want them to ever feel ashamed of their mother. —— Will you kindly give me such information as you have at hand in regard to courses offered?"
>
> "I want to ask, will you please show me the way to get some of your literature to study. I have three children and want to raise them to be men and women and am eager to get everything in my power to help them to be so. I am very, very poor and not able to buy literature but I don't think that would be any drawback to the children if I raise them right and give them all the education I possibly can. There are so many mothers in this saw mill town that are starving mentally for such literature as you have."

If the homes are really too poor to buy the books of the reading courses, and there are no libraries in the vicinity, books are loaned and the joy this gives may be seen from the following letter:

"Your letter at hand. I hoped to take up the study of the reading courses for parents, but am unable to get the books required for the course. Your letter gives me hope. Yet I may not understand your generous offer. To make this shack into a home. To have our daughter grow up a good, useful woman and to learn to be of use to our friends and neighbors is my earnest desire. If you can lend me a helping hand my task may be easier."

Mothers' Reading Circles and their organization play a very important part of the work of this Division.

To get an exact idea of the methods of founding and continuing one of these, it is perhaps best to quote from the report of a "leader" of one of these Reading Circles, which is typical of their work:

"Our circle is called the Mutual Benefit Reading Circle. The first meeting was announced in eight Parent-Teacher Associations and in the local papers. We decided to meet every Wednesday at my home from 11 a. m. to 2 p. m. This hour was chosen so that the mothers would have an opportunity to do their morning work and return in time to receive the children when they came from school in the afternoon. The members bring their luncheon and a cup of hot tea or lemonade is served. This feature promotes sociability. Animated discussions about home problems take place while the members sit about in groups with their lunches.

"The meetings are called to order promptly, as promptitude on the part of the leader begets promptness on the part of the members. A record showing the roll of the members, their attendance, written reviews, names of visitors, the date of enrolment of each member, residence, telephone, the books loaned and all business transacted, is carefully kept.

"Attendance at the meetings is of three classes: (1) those who are working for the certificate and writing reviews; (2) those who attend for the good they may get; and (3) visitors. The average attendance has been 26; largest number present, 34. Children have been present at every meeting. They have rarely remained in the room, preferring to play under the trees. During vacation period there were as many as 20 children at one meeting. The Circle hired a teacher to come and look after the children, the mothers contributing enough each time ($2.00) to pay the teacher for her work. She read to them, played games, and had considerable hand work done.

"Many of the members come a long way, at least two or three miles, but automobiles have assisted in transportation. The absentees are alway asked for and the pleasant notes of greeting or explanation for absence are read.

"At first different women read, but finally the leader did all the reading, as the members seemed to grasp the subject matter better when they had become accustomed to the expression and voice of one reader. There are frequent

reviews and always a thorough review of each book when it is finished, before the written reviews are sent in. Those who are working for the certificates usually take copious notes. The leader has made out questions and called for volunteer answers. Helpful passages have been memorized, but this has been voluntary. The reading is often stopped to discuss points of agreement and disagreement with the author. These discussions have proved very helpful.

"To assist the mothers in gaining the points in the books, at the close of each meeting each member hands in two or more questions on the work gone over at that meeting.

"Two newspapers, a local daily and a Los Angeles Sunday paper, report our meetings faithfully.

"At first we scarcely knew where we should be able to obtain all the books, but now there is no question of difficulty in the way. I owned ten of them to begin with, so I began with a faith that we should have them all as needed. One mother is buying all of them as we go along, and she and her husband read them at home as we are reading them; then she generously loans them to those who have missed the readings. Our librarian has given us splendid cooperation. All the books of the course are on the shelves, and are in great demand. Our County Branch Librarian has done all that he can to secure the books for us, and has been quite successful.

"We have a sort of circulating library of

kindred books to those in the course. These are in great demand, and have been read by many. Some of them are: 'Self-Training for Motherhood,' by Sophia Lovejoy Dickinson; 'Natural Education,' by Mrs. Stoner; 'Character Building,' by J. T. White; 'Mottoes and Commentaries of Froebel's Mother Play,' by Susan E. Blow; 'Education of Man,' by Froebel; 'Blessed Be Drudgery,' by William Gannett; 'The Children of the Future,' by Nora A. Smith; 'The Study of a Child,' by Louise E. Hogan; ''Seventeen,' by Booth Tarkington; 'Story of My Life,' by Helen Keller; 'The Mother's Book,' by C. B. Burrell; 'Up from Slavery,' by Booker T. Washington; 'The Century of the Child,' by Ellen Key; and 'Schools of Tomorrow,' by John Dewey.

"One of our kindergarten teachers came to us one afternoon while we were reading 'A Study of Child Nature' and gave us a very interesting exposition of 'Mottoes and Commentaries of Froebel's Mother Play,' and explained some of the ways in which specific kindergarten plays educate the child. The circle also visited this same teacher's kindergarten at her invitation, and went through the various activities of the kindergarten along with the children. This teacher is a daughter of one of our members, and she gives us much help through her suggestions and her earnestness. Another one of the members, an ex-kindergartner, gave us a delightful account of a trip to Froebel's part of the country in the Thuringian forest, and a

visit to a genuine German Froebel kindergarten of the conservative type.

"We had a list of 'The Books that Most Influence My Childhood,' submitted by the members. This proved interesting, and covered a wide range, as may be imagined.

"As to our accomplishment: We have read and reviewed four books and nearly finished a fifth, while individual members have read the fictional works in the course. We agreed to read these books by ourselves, and have thought it good to make this vacation reading. The books have all been discussed at the meetings."

A great deal of work is done by the Division in the issuing of printed matter and pamphlets on home education. These treat of this subject from every angle, and they are sent to all women cooperating in the work as well as to all the members of the Mothers' Clubs.

The Division of Home Education is doing everything possible to help mothers train their children before they are of school age through the answering of direct questions, by the issuing of printed matter and through a special reading course on the care and training of children.

A very important part of the work is the promotion of Parent-Teacher Associations in the rural districts, which are sometimes called "Mothers Clubs."

The method of organizing these is that two women

are selected from each school district throughout the country who are interested in the forming of such an organization. These women call together the parents of the neighborhood and discuss with them their common problems, the Bureau of Education furnishing a simple form of organization. It also suggests programs, materials for the meeting, and sends to these Parent-Teacher Associations, of which a complete list is kept, any printed matter that can possibly prove of interest to mothers. Should any problems be discussed at these meetings for which a solution cannot be found, the teacher in charge makes a report direct to the Bureau of Education asking for advice regarding same.

CHAPTER XIII.—GOVERNMENT ASSISTANCE FOR RURAL SCHOOLS

Bureau of Education.

The work of the Bureau of Education in connection with rural schools is carried on in cooperation with the state systems, the Federal authorities assisting the states officers when asked so to do.

The work of this Division may be said to fall under the following headings:

(1) It acts as a clearing house of information on every phase of rural school work all over the country.

(2) It gives information concerning normal schools, and advice concerning the training of teachers.

(3) It draws up programs of study for rural school work.

(4) It organizes Rural Teacher Reading Courses. Throughout the country rural teachers are enrolled for reading courses, who are advised to read certain books selected for their special adaptability. The members of the reading course then send in to the Division a short criticizing synopsis of what they have gathered. Should this

prove satisfactory they are presented with a certificate signed by the Commissioner of Education to the effect that they completed the required course.

(5) The Bureau constantly sends out literature, with or without one of its representatives, showing the needs of the rural schools.

(6) One of the most important phases of the work of this Division is its work of survey.

At the invitation of authorities in charge, the Division sends out representatives to make a complete survey of schools in rural districts. A complete report of these surveys, together with the advice and recommendation of the officers of the Bureau of Education thereon, is afterwards published for the benefit of the public at large and for other educational bodies. This greatly solves the problems of communities living under similar conditions.

However, not only problems of school work are solved, but better methods of administration and finance are discussed.

One of the latest surveys published by the Division and typical of this work is that of Wyoming. In this instance a committee appointed by the Governor and provided for by the state legislature sent an invitation to the Bureau of Education for the survey of its schools.

The method of conducting this survey consisted in personal visits to the schools and teachers by the members of the survey, visits to the country su-

perintendents, the collection of statistical data, etc.

To arouse interest and educate the public, letters were sent to hundreds of rural inhabitants of Wyoming, inquiring whether the schools were satisfactory and what complaints there were against them. This was done not merely to get their personal opinion, but to get the state stirred up in taking an interest in its schools in sufficient measure to handle the legislation concerned therewith.

The completed report and recommendations of the Bureau of Education, of which there were issued 3,500 copies, was then circulated throughout the state. The direct result of this was that the Governor of Wyoming called a meeting of all the people connected with the schools. This meeting lasted three days and discussed all the recommendations brought up by the Bureau of Education. Every possible method of arousing the people of the state to the importance of a change in the school legislation was used.

The Bureau of Education gave further direct help in drawing up these new laws incorporating the changes and improvements suggested in the report.

Public Health Service.

At the request of health and educational authorities, the Service makes surveys and investigations of problems of school hygiene. These investigations are largely confined to rural districts, and include not

only instruction in sanitation of school buildings and in the determination of the physical and mental status of the school children, but they also include researches in mental hygiene.

CHAPTER XIV.—MANNER OF DISSEMINATING INFORMATION BY THE DEPARTMENT OF AGRICULTURE

(a) *Demonstration Work of the States Relations Service*

States Relations Service.

The States Relations Service is the only Bureau of the Department of Agriculture which is organized especially to deal with the states. The principal points of contact have been through the experiment work carried on by the state agricultural colleges and through the different extension activities of the Department, namely, teaching of the people on their farms or in their homes in a direct personal relationship.

The demonstration work of the States Relations Service is conducted in two offices—one for the fifteen Southern states and another for the thirty-three Northern and Western states.

Their methods of organization slightly differ. The territory covering the Southern states is divided into the work of the "County Agent," with the farmers (who at the same time is the organizer of the Boys' Club) and the work of the "Woman

County Agent'' who is in charge of the Home Demonstration Work in the farmers' home, and the Girls' Club work.

The territory covering the Northern and Western states is divided into three parts. The work of the County Agent with the farmers and the work of the Woman County Agent in the farmer's home and the Boys' and Girls' Club work.

The only difference is the slight one of organization; the principles of the work are, however, identical.

The Government in beginning to give practical aid to the farmer found that the simple issuing of bulletins was almost useless as a means of instructing the farmer in modern methods. There was comparatively little likelihood of his putting the directions of the bulletins into actual practise without his being personally shown how this was to be done. In 1904, therefore, the Department of Agriculture conceived the idea of employing men to get into personal contact with the men of the rural districts. The plan was first tried out in Texas and proved to be the ideal method of disseminating agricultural information.

It was intended that the work should begin with the farmer. It was found easier, however, to reach the boys of the family first, because the farmers themselves objected to experimenting with their own time and money on ideas new to them. They

A demonstration in applying poisoned bran in grasshopper fight.

The County Agent conducts parties of farmers on "Excursions" to farms of successful men whose good work makes the best "demonstration."

had little interest in anything that did not bring them immediate profit, but did not object to their boys working with the County Agent, and once they had discovered the success that attended the methods being taught the boys they themselves began to turn to the Agent for advice and help. This was the beginning of the work of the County Agent which is now used all over the country to place at the disposal of the farmer the entire work of the Department of Agriculture and the State Colleges.

The main plan of the demonstration work with the farmers is to select a number of them and get each of them to agree to carry on a "Demonstration" on their own farm under the supervision of the County Agent. This method of demonstrating certain problems on the farmer's own ground was found infinitely more satisfactory than the method of model farms, partly because the farmers were only interested in the particular problems which concerned their own farms, and were not at all disposed to visit those of the Government, and partly because the farmers had an idea that the methods practised on the model farm would not be profitable under the conditions prevailing on their own farms.

The demonstrations on their own ground invariably concern some particular problem that the district may have to contend with. In the case of a corn demonstration, for instance, the farmer takes one acre. He cultivates it under the instruction of

the County Agent, the other farmers being urged to come and see it in its various stages. Field meetings are often held in connection therewith, at which the demonstration is discussed in all its different phases. When the success of the demonstration is apparent the Agent persuades the other farmers to undertake some line of work on their own farms based on this experience. During his regular visits to the demonstration plats, the Agent is now able to get at the other problems of the farmer. The visits of the men of the district to the field bring the whole community into meeting for a common interest and gradually for the discussion of matters of mutual concern.

The Agent does not pretend to the farmers that he is able to solve single-handed all the problems they have been fighting for years. He makes it clear to them that the Government has founded for the solving of these problems a gigantic department working hand in hand with their State College solely and only to furnish every known scientific and technical aid for the fostering of agriculture. He impresses on them that he is simply one part of a great system—a connecting link—and all the separate departments of the Government are at his disposal in order to give the farmer any assistance he may need.

Many of the problems in connection with the Agent's work require special skill and technical

knowledge. There are, therefore, employed "Extension Specialists" connected with the various Bureaus of the Department of Agriculture, and the State Colleges. These Extension Specialists are concerned with such problems as the introduction of silos, marketing, dairying, insect pests, etc.

Not only does the Agent pass on to the farmer aid resulting from scientific investigation, but he is also a connection between the farmer and his Government in all matters needing practical assistance and advice.

Generally now, in the North and West, before an Agent is appointed the state leaders for the Agricultural Colleges go into the county to ascertain whether the conditions are favorable for the appointment of a County Agent. If so, they organize the county to take up the demonstration work. These organizations are called Farmers' Bureaus. They are made up of the experienced farmers of a county and through the local membership the Bureaus become clearing houses of information and experience of the farmers belonging to the county. The Agent gathers a great deal of local knowledge through this membership, which he in turn imparts as lessons to those who have no knowledge of the points in question. The County Farm Bureau helps to unify the efforts of existing rural organizations and strengthens their work.

In the South there exists a different system. The

farmers, having been organized around a particular demonstration into local farmers' clubs or unions, come together in a central county organization made up of delegates from these local associations.

That is to say, in the North and West the demonstrations come from an official organization, while in the South the county organizations are formed as a result of the demonstrations.

The County Agents from time to time get together a group of twenty or thirty farmers with their cars in a vicinity to see some particularly interesting experiment made with or without assistance by some farmer living at a distance. Not only are the experiences with the growing of crops thus exchanged, but the Agent is keenly alive to any interesting facts relating to the breeding of cattle, the marketing of dairy products, etc.

Large groups of farmers from each county are also taken to the Agricultural Colleges to view special experiments which may be of vital interest to their own particular problems.

Originally the Farm Bureau was simply to aid the County Agent's work. It is now, however, beginning to be recognized as the official agricultural body interested in promoting a better and more prosperous rural life. It is interested in home economics, demonstrations, boys' and girls' club work, farm management, demonstrations, and the work of the various institutional specialists. The Farm

Bureau has now become an agency through which all groups of rural people, whether organized or unorganized, are able to secure a hearing.

The principal purposes of these organizations are:

(1) To bring to the Agent the advice of the best farmers in the county as to what ought to be done, and how it should be done.

(2) To provide an organization for easily and quickly reaching every community in the county with information of value to that community or to the county as a whole.

(3) To provide a plan for organized help, enlisting the cooperating of all the farmers interested in carrying out a county agricultural program of work.

The woman Demonstration Agent gained access to the home through the girl and was able to obtain the cooperation of her mother. The office of Home Economics (Part VII, Chap. I) was her great help.

Although the Government had given the farmer expert aid in his work since 1904, it did not keep pace with this in looking after his home. It had taught the farmer modern scientific methods at every angle of his work, while his women folk were still using primitive methods for their housework and the work of the farm that concerns them. No attention was given to this matter until the Department took up demonstration work through local

agents in a small degree, which preceded the passing of the Smith-Lever bill in 1914. This bill agitated the question of increased funds not only to develop better farming, but to develop better homemaking so as to create general contentment on the farm.

It was found that a great many farm women knew better methods than those they were using, but they were entirely handicapped for lack of money. Part of the purpose of the work, therefore, was to show the women how to convert their personal farm labor into a greater number of dollars and cents. And so they were taught first of all to help themselves efficiently in the handling of marketable material.

The Women County Agents also began to impress the fact that no man is as dependent on the practical efficiency of his wife as the farmer. There was no need to point out her "sentimental" value, but her value as a business partner had been very little emphasized. The County Agents made this clear and encouraged the wife and daughter of the rural districts in discovering the same methods of efficiency as the farmer already knew in his part of the business. The women were therefore taught in every possible way that their time has a value to the world of at least 25 cents per hour, and that it is their duty to finish their work as quickly as possible so that they may enjoy their friends, their children and do any reading they may want to do.

The chief practical method of accomplishing this

was through the introduction of labor-saving devices, either bought or homemade. It was found that many of the women had been walking for miles with pails of water when a few dollars could have laid pipes, that they had been stooping over sinks and washtubs which comparatively little labor could change to a comfortable height. "Save your steps" has been the cry of the Home Demonstration Agent all through her work.

It has been somewhat difficult to introduce modern methods into the farmers' homes, for anything that cost money was looked upon with suspicion as possible waste. So the Agent began by the simplest methods and with those as would benefit a vast community instead of a prosperous few, and a great many of the labor-saving devices were even made at home. One of the most popular of these has been the homemade fireless cooker. The farm women have known well that their methods of frying, of cooking cereals, etc., left much to be desired, and the fireless cookers have done much to help them. The iceless refrigerator, also, for farms where it is impossible to obtain ice and where there are no cool cellars has met with a very great success. These iceless refrigerators are easily and inexpensively constructed on a basis of evaporation. Sanitary and practical devices in connection with milking, butter-making, etc., have also been devised by the Agent.

The health of the people on many of the farms

was found to be anything but good, a great deal of fault being due to the wrong choosing of meals. So the Women Agents have been doing everything in their power to teach the women on the farms the value of well-balanced rations, with the aid of the Division of Home Economics. (See page 323.)

Demonstrations have been made in the making of every kind of bread and biscuit, using substitutes for wheat, based on experiments made in the Bureau of Chemistry.

The Demonstration Agents have also taught the country women how to purchase the best values. It was found that in a great many cases the women were using the fashions of the cities which were entirely unsuited to country life. The Agents are doing their very best in every way to encourage these women to either make themselves attractive, suitable garments or are showing them how to purchase such at the best possible value. This also applies to the furnishing of their homes. Harmony and beauty of line and color have been pointed out and excellent results achieved.

The work in the farmers' homes may be said to have begun with the Girls' Club work. The Women Agents started by organizing for the girls of each district garden clubs, showing the girls how to use their gardens to the best advantage. However, mere gardening was not sufficient for these girls who now had their ambitions awakened, and the

A Canning Club takes lessons in canning.

A "Mother-Daughter" canning team. (See "Mother-Daughter" Canning Clubs.)

Woman Agent began to show them that they could make money out of these little plots by canning their produce. The idea of canning and marketing vegetables was thus given to these young girls of the rural districts, and the "Canning Clubs" became more and more spread over the country.

The "Canning Club" was the foundation of all fields of women's work, and through it the Agent found herself as a matter of course allowed to enter into the home of the farmer's wife. And it gave her a splendid personal contact with everything that concerns the rural home.

Before the end of the season the work of the young girls under the guidance of the County Agents proved of such efficiency that the mothers became eager to see how this work was done, and gradually the mothers and daughters were found both eager for the advice of the County Agent on everything that concerned their side of the life on the farm.

The County Agent originally worked in her district only a few months each year. This made the states willing to make appropriations for the work in cooperation with the Federal Government. Now, however, she has more than ample work for the whole year round.

The general scheme for work of the girls entering the clubs lasts over about four years. During these four years they are supposed to learn every-

thing to do with the management of a house that cannot be learned at school. Their work is not simply of an educational character, but of an economic value sufficient to make them almost financially independent.

The first years is given to the growing and preserving of tomatoes and other simple market produce. The second year is supplemented with other vegetables. The third year more vegetables are grown and work is commenced on the fruits of the farm. During the fourth year the girls are taught the expert making of jellies and preserving of fruit. The produce on which they specialize depends of course on that best grown in some particular county. In some counties twenty or thirty girls are working on Spanish pepper and making considerable money in the preserving thereof. The girls are always taught to standardize their work so that whatever they make has a certain marketable value.

When the time of the year makes it impossible for the Agents to continue this work the Clubs are given cooking lessons and sewing lessons by the Agents. Here again the work is of a strictly practical kind, in so far as the girls are taught to make their own club uniforms and their own clothes. In the cooking classes they are taught to use the club products and to make all kinds of breads, which is extremely necessary on the farm.

During the fourth year the girl is given permis-

sion to wear the white uniform of the Agent. She then has sufficient knowledge of the expert methods the Agent has taught her to become a leader of the community.

This movement has done a great deal to make domestic work popular among all classes of young girls and has developed a conception of the dignity and value of such work. It has also given them a sense of responsibility toward their sisters in the community.

Scholarships are now being offered in many instances by people of means in different communities, which allow the most efficient girls of these clubs to enter the State Colleges for special courses in order to make them demonstration leaders of their communities. These girls can then be constantly appealed to for advice should the County Agent not be on the spot.

The interest which the mothers took in the daughters' work under the Home Demonstration Agent brought about a close cooperation between the older and younger members of the community. Clubs were therefore founded which are sometimes called "Mother-Daughter" Canning Clubs.

States Relations Service.

In one of the clubs organized in 1916 there were 29 mother-daughter teams, or 58 members. The youngest "daughter" was 9 years of age, and the oldest "daughter" 17. This club held its meetings

every two weeks in a local church. In 1917 the number of members increased to 400, and while in 1916 there were only 11 such clubs there were 200 of them in 1917.

As a rule two meetings are held each month. The work of the canning season was organized with a view to having cooperative canning parties. This allows a convenient number of "Mothers and Daughters" to meet at some member's home to conduct their home canning. If the club is too large to do all its work at one place with a single canning outfit, it is divided into smaller groups. Each group then owns its canning equipment on a cooperative basis. This results in much greater economy and efficiency.

The following table gives an idea of the amount of produce canned by a club in Kansas:

In the Northern and Western states there is a club leader for both boys and girls. In the South, however, while there is a club leader for the boys, the girls' clubs are organized with the assistance of the Woman Home Demonstration Agent. (See page 132.) The principle is again the same, the difference being simply one of organization.

States Relations Service.

In the Southern states the boys' clubs (and in the Northern and Western states the girls' clubs also) are started by a state club leader, who arranges circulars and bulletins in a manner to be in-

Team	Members	Age	Quarts of Products Canned						No. Varieties canned	Total value	Total Cost production	Total profit	More than in 1915
			Total	Fruit	Vegetables	Soup	Meats	Jellies					
													Quarts
1	Mrs. Bernice Timmons Helen Timmons	11	485½	189½	253½	15	21½	6	110	$203.05	$58.56	$144.49	115
2	Mrs. E. L. Marshall Ruth Marshall	17	829½	336½	285	4	31½	172½	253	274.20	138.33	135.87	140½
3	Mrs. Augusta Tinberg Edith Tinberg	16	516½	137½	313	5½	35	25	60	219.85	45.45	174.40	265
4	Mrs. Mary Shaw Frances G. Shaw	10	375	200	125	.....	.....	50	110	157.00	72.70	84.30	.....
5	Mrs. M. E. Duncan Ethbert Caulk	11	553½	210	233½	.....	10	100	109	166.23	46.17	120.06	.....
6	Mrs. Kate Clements Margaret M. Clements	17	172	82½	84½	1	.....	4	36	82.35	33.71	48.64	42
7	Mrs. Fannie Hampton Lola M. Hampton	14	534½	249	214	10	24	37½	244	225.83	73.53	152.30	100
8	Mrs. Exilda Elmer Maud Elmer	14	283	90	130	.....	.....	63	48	117.50	34.55	82.95	110
9	Mrs. Eliza E. Sowers Viola Sowers	9	167	66	72	.....	20	9	48	64.25	38.89	25.36	.....
10	Mrs. Kate Elmer Louise C. Elmer	17	606½	172	352½	.....	.....	82	60	268.95	68.87	200.08	340
11	Mrs. Nina F. Sowers Elsie Sowers	14	234½	72½	127	.....	1½	33½	103	88.45	27.16	61.29	100
12	Mrs. H. W. Ranney Kenneth Ranney	..	401	147½	187½	.....	.....	66	60	156.27	44.68	111.59	.....
13	Mrs. Nora Sowers Ruth Sowers	17	229	86	137	.....	.....	6	21	85.11	27.19	57.92	142
14	Mrs. F. T. Grimes Eaton Grimes	..	135	77	31	.....	.....	27	42	61.31	25.03	36.28	.....
15	Mrs. T. R. Heath Restine Heath	10	293	150	130	3	.....	10	120	131.45	39.15	92.30	
16	Mrs. Mattie Stover Gilbert Stover	17	233	137	89	.....	7	.....	38	107.20	35.08	72.12	.....

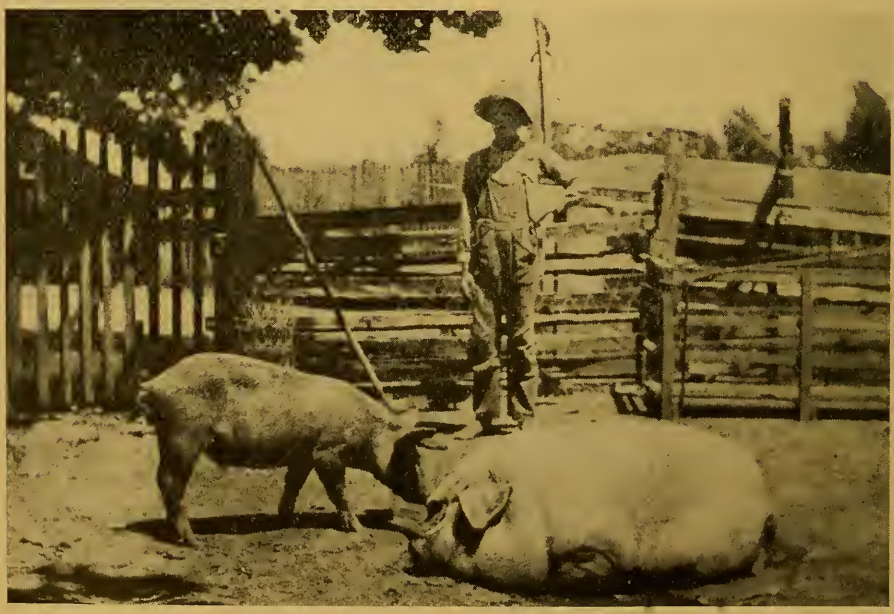
(Continued)

Team	Members	Age	Quarts of Products Canned						No. Varieties canned	Total value	Total Cost production	Total profit	More than in 1915
			Total	Fruit	Vegetables	Soup	Meats	Jellies					
													Quarts
17	Mrs. Theresa Caulk Mary Caulk	..	533½	439	40½	10	19	25	24	$178.63	$82.05	$96.58	.....
18	Mrs. Oliver Neva Oliver	12	160½	114½	46	.....	.....	.....	60	26.75	68.85	(loss) 42.10	97
19	Mrs. Lillian Hood Lois Marshall	14	208	156½	30½	1	.....	20	103	85.70	43.74	41.96	.....
20	Mrs. Mary Emory Melbourne Emory	11	179	90½	62	5½	.....	21	60	74.15	27.74	46.41	.....
21	Mrs. Carl Liebernon Clara Liebernon	..	295	235	47	.....	.....	13	156	158.44	38.31	120.13	40
22	Mrs. Chas. Meyer Frances Meyer	12	383	135	174	.....	6	68	163	117.65	56.05	61.60	.....
23	Mrs. Anna Rodenbeck Daisy Clements	..	304½	87	166	4½	8	39	56	108.90	73.96	34.94	.....
24	Mrs. Minnie Fidler Hazel Fidler	15	342	163	179	.....	.....	.....	32	129.51	23.08	106.43	.....
*25	Mrs. Dews												
26	Mrs. P. W. Rieger Bernadette Rieger	17	622½	362½	225	20	15	.....	30	235.00	66.55	168.45	.....
27	Mrs. C. A. Linnerson Marvin Linnerson	..	280	136	144	.....	.....	.....	24	120.60	34.05	86.55	60
28	Mrs. Martha Brokaw Edith Brokaw	14	277	118	159	.....	.....	.....	32	74.63	46.34	28.29	175
29	Mrs. Veda McConnell Cleo Adams	14	205	80	80	5	.....	40	110	121.50	50.55	70.95	80
			9,838	4,520	4,117½	84½	183½	932½	Av.82.4	3,840.46	1,420.32	2,420.14	1,806½

*Team No. 25 reported 296 quarts canned in all, with no record of cost, value and profit.

Average cost production per qt. $ .14
profit " " $ .24

A Corn Club boy who made a record of 228 bushels of corn to the acre.



Two hogs. Larger hog raised by boy under the direction of County Agent weighed 380 lbs at 9 months. Smaller one raised by his father.

telligible to the boy and assist him in carrying out his club project.

Usually the state club leader or one of his assistants, in cooperation with the leaders of the community, finds the names of the boys who would be willing to take up work in connection with the production of some agricultural product. The boys are then organized in a group and pledge themselves to follow the instructions given them and make written reports of the progress of the work.

The leader gathers the boys together in a school or some place convenient to all of them. They elect a president, a vice-president, and a secretary for all the clubs of that particular community which are called its "Boys Agricultural Club." The County Agent is the instructor of these on their plots and the cooperation of the County Superintendent and teachers is sought by him.

There are altogether 40 different kinds of clubs averaging about 9 projects to a state, but only from 3 to 9 are undertaken in any one state. Each activity is specially suited to the district in question, the principal clubs being Corn Clubs, Potato Clubs, Garden Clubs, Canning Clubs, Sugar-beet Clubs, Poultry Clubs, Pig Clubs, and Baby-beef Clubs.

Corn Clubs were the first to be organized, because corn is a plant that can be profitably produced in most sections of the United States. The boys throughout the country have common knowledge of

corn and the lessons seem easy, and also corn yields more food to the acre in most sections of the United States, when properly handled, than any other grain group.

Cotton is a standard crop in the South and in any system of diversified farming must occupy an important place. Therefore, Cotton Clubs have been organized for the purpose of teaching boys how to make the greatest yield at the lowest cost.

One of the most popular clubs started in almost every county for boys and girls, old and young, are the Poultry Clubs. In connection with these special bulletins are issued each month entitled "What to do with your poultry":

January .. How to set a hen and care for her.
February.. Feeding and care of chicks.
March .... How to build a brood coop.
April ..... (a) Lice and mites on poultry.
(b) Produce the infertile egg.
(c) Packing eggs in water glass.
May ..... Care of growing chicks during warm weather.
June ..... Marketing old stock and broilers.
July ..... Capons and caponizing.
August .... Preparing birds for the show.
September . Common poultry diseases.
October ... Feeding and housing winter layers.
November . Tray nests for layers.
December . Selection and care of breeding stock.

These are followed by bulletins discussing the marketing and canning of poultry which have not been sold.

The various clubs are also encouraged to hold

exhibitions at fairs and to enter into competition with other clubs with regard to their produce. Merchants and other public-spirited citizens are invariably ready to raise funds for prizes to the successful contestant. The giving of money prizes has been discouraged as much as possible, pins and badges having been found ample incentive for competition.

(*b*) *Office of Experiment Stations*

States Relations Service.

The Experiment Stations are operated under the direction of the agricultural colleges of every state and consists of a corps of experts in every kind of work connected with agriculture and farming in all its aspects. Their studies are both scientific and practical and are made in the laboratory and in the stables and fields adjoining the colleges.

The Office of Experiment Stations of the Department of Agriculture at Washington has general supervision over the experiment stations in the various states as far as the Federal work is concerned. Under the provision of the Hatch and Adams Act the Federal Government contributes annually $30,000 to each of the 48 states for the investigation of agriculture.

The publishing of the Experiment Station Record forms an important part of the work of this Division. It appears each month and gives detailed

reports of all the experiments in agriculture conducted in the United States and abroad. It is arranged topically, so that those interested can easily keep posted as to experiments being tried out under various headings all over the world. These abstracts are taken from reports of the Experiment Stations throughout the country, abroad, and from other scientific institutions. The bringing together of these in one compact volume makes it easy for the student and farmer and investigator to obtain the ideas of the entire world on any agricultural subject, and also to learn the progress that has been made in experiments relating to any particular subject. In this way much duplication of such investigating work is spared and there become available throughout the country the conclusions of the best authorities on agriculture.

Should the farmer not read the Experiment Record himself he still gets the benefit of the information contained therein through the officers of the Experiment Station Service and the Demonstration Agents.

(*c*) *Farmers' Institutes and Movable Schools*

States Relations Service.

Other methods of giving practical instruction to the farmers are through the Farmers' Institutes and Movable Schools which are described below.

The Farmers' Institutes are meetings of farmers

at which addresses by several persons are given free on various agricultural or home economics subjects of interest to any particular community. The speakers come from the staffs of the Agricultural Experiment Stations or Colleges or are farmers capable of telling others of their success in certain branches of farming.

The Farmers' Institutes give instruction to about 3,000,000 farmers each year.

In the plan for movable schools the colleges send their men or women teachers over the state to instruct in classes. They go from place to place, remaining in each locality about a week, carrying equipment for the purpose of instruction.

Prior to the organization of the County Agents' work the Farmers' Institutes were the only means available of taking over to the farmers personally the knowledge gathered at the college of agriculture and the experiences of the best farmers in the community. As the work of the County Agents spreads, the movable school becomes a valuable adjunct to him in getting the best information from the colleges direct to the people.

(*d*) *Office of Information, Office of Publications and Library*

Office of Information.

The widest possible circulation for the discoveries and recommendations of the scientists, specialists, and field work-

ers of the Department of Agriculture is given by its Office of Information.

This supplies the public press, the small county weeklies, the farmers' and technical papers with facts taken from publications, and also from oral statements of representatives of the Department in a form convenient for publication and designed to attract the attention of the reader and lead to the adoption of the methods recommended.

It also keeps the public informed through the press as to regulatory and other matters of which the public needs to know.

A weekly news letter is issued by this Office. Its circulation, however, is limited to the staff and volunteer workers of the Department, to editors, and other bodies representing government agencies or states.

Sometimes a query addressed to the Department of Agriculture and the correspondence resulting therefrom will bring up points of vital interest. The Office of Information will convey such data to the public at large through the press or in any other manner it may consider suitable.

Postal Bulletins, which are informal circulars gotten out to assist field agents or other officers of the Department, are prepared by this Office.

The Division of Publications, of the Department of Agriculture, is concerned with the publication and

Offices of Publications. printing of bulletins, pamphlets, circulars and posters issued by the Department. During the last fiscal year there were issued to the public at large fifty-five million copies of printed material of different kinds.

Under the direction of the Motion Picture Committee, the Office of Publications also makes moving pictures, to be used by the Demonstration Agents (see page 125).

The method of sending out publications is as follows:

(1) The Division keeps a very complete list of those interested in certain publications to whom they are sent immediately on being issued.

(2) A monthly list of publications is printed, so that those desiring any particular one may apply for same.

(3) Four-fifths of the popular bulletins issued by the various sub-divisions of the Department of Agriculture go to members of Congress for distribution, the remaining fifth being for general distribution.

(4) The Demonstration Agents (see page 125) distribute a very large number of the bulletins, etc.

Library of Agriculture. The Library of the Department of Agriculture comprises approximately 140,000 books and pamphlets and receives currently over 2,300 periodicals. It contains the largest collection of literature in this country on

agriculture and the related sciences and is in the foremost rank of the agricultural libraries of the world. Although intended primarily for the use of the Department, it may in addition be considered the national agricultural library, and as such it attempts to place its collections at the service of all who are engaged in agricultural research.

The influence of the Library on the general welfare of the farming community may at first glance seem very slight, yet on more careful investigation it will become evident that this influence, although indirect, is greater than might be supposed. It is, of course, impossible for many of the farmers of the country to come to Washington to consult the Library, but it is possible for the information stored in the Library to reach the farmer in an indirect manner.

In the preparation of the publications of the Department (see page 147), the collections of the Library assist by giving printed opinions and results of the experience of past investigators all over the world.

Through its relation with the agricultural Experiment Stations and Colleges, the Library is attempting to be of assistance to those workers in agricultural science who are located near the farmer and are thus familiar with his interests.

But the Library is especially useful indirectly to the agricultural community through the assistance

rendered to the scientific workers in the Department in connection with their researches.

Printed cards for the publications of the Department are prepared by the Library and can be obtained at small cost from the Library of Congress.

PART II

THE WOULD-BE SETTLER

CHAPTER I.—THE DISPOSITION OF PUBLIC LANDS

General Land Office.

The General Land Office has full charge of the survey and disposition of the public lands and the administration of the public land laws.

Ever since 1862 the controlling principle of practically all the laws passed by Congress with regard to the handling of public lands has been for their development, improvement, greater production and for the interest of self-owned farm homes. Prior to that time, the public lands had existed largely for the main purpose of securing money for the support of the Government. It became apparent that this was not an enlightened policy, for it induced more to speculation and monopoly than to home-building and development. An indication of this tendency is found in the first preemption law of 1841, but the real home-building policy did not commence until the enactment of the first homestead law in 1862, the essential features of which obtain to this day. Under this law more than any other has the great Mississippi Valley, Middle West and West been built up.

Briefly, the Homestead Law gave the land free to

the man who would make his home on it and develop and improve same. A little later the mining law gave the land for the mere staking thereof to the man who made a discovery of mineral. A little later the coal land laws followed much the same policy. The desert-land laws gave the land at a nominal price to the man who would reclaim the land and irrigate and cultivate it.

To provide means of transportation to open up the new country, Congress made immense land grants of millions of acres to induce the construction of railroads and wagon roads. To aid the new states in laying a sure foundation for education, each was given a large grant of public lands, the proceeds of which were to be used for educational purposes; this laid the basis for the large interest-bearing school funds possessed by nearly all the states.

Congress gave the swamp lands to the states in which they were situated on condition that such lands should be reclaimed from their swampy condition and made cultivable, and likewise gave lands to the arid states on condition that the lands be irrigated. Thus is seen the principle of development running through all of these laws. Congress early saw that production, population, homes, cities and railroads were to be preferred to the comparatively small amount of money that might be secured for the Government if that were made the principal end

in view. The Office has therefore developed from a mere selling agency into an administrative and judical bureau of the Government.

At the present time the organization of the General Land Office consists of the Washington Office, 99 local land offices, situated principally in the Western states, 13 Surveyors General, the Field Surveying Organization, and the Field Service Organization. Each of these branches has its special functions to perform, but the work of all branches is correlated.

The main office at Washington is the supervising clearing house over the other branches. The local land offices are the places where the public secures information and makes entries and proofs on public lands; each has a Register and Receiver, the former acting in an administrative and judicial capacity, and the latter in a fiscal capacity. The Field Surveying Organization performs the field work of surveying the public lands. Since 1910 this has all been done directly by government employees rather than by contract as formerly, the results being more satisfactory. The offices of Surveyors General prepare instructions for field surveys and plats and field notes of surveys that have been made, for the purpose of a permanent record. The Field Service Organization is an investigating force, the principal business of which is to investigate frauds and ascertain if the law has been complied with, as well as to

make numerous examinations for purposes of appraisal and classification.

The fiscal year ending June 30, 1917, shows that during that year more than one hundred and twenty-three thousand of original selections and entries of public lands were made; more than fifty-four thousand patents were issued, conveying an area of 11,300,000 acres; the survey of more than ten million acres approved and accepted, and some one hundred and fifteen thousand acres restored to the public domain after investigation in the field, besides the determination of some six thousand contests and proceedings for the settlement and disposition of various forms of disputed claims to the public lands.

In this connection it may be stated that, subject to the supervisory authority of the Secretary of the Interior, the General Land Office is the court in which is settled and determined all controversies between rival claimants to the public lands. Thus the General Land Office performs a semi-judicial function probably larger in point of number of cases and values involved than any court in the country. During more recent years this office has assumed larger duties in what might be termed an administrative capacity, such as preservation and protection of the public lands and the making and supervising of leases and permits of various kinds.

As to the particular opportunities offered by the public-land laws as they exist to-day:

First, as to the homestead law, a person may file on a homestead of 160 acres of ordinary land, of 320 acres of so-called dry-farming land, and of 640 acres of grazing land. There are numerous provisions in the law for different forms of so-called additional entries for those who have less than the maximum area of the different classes of land. Under all of these laws the homesteader is required to place a habitable house on the land and to make his home thereon to the exclusion of a home elsewhere, and actually live on the land not less than seven months out of each year for a period of three years. He is also required to cultivate not less than one-eighth of the land, except on the stock-raising homestead, where he is required to make certain improvements in lieu of cultivation. Having done these things, the homesteader makes his proper proof thereof and gets title to the land without cost or expense except for certain fees and commissions for handling the business. Only citizens of the United States who are over 21 years of age or are heads of families are entitled to this privilege and no person is entitled to more than one homestead.

Still another form of homestead is found in the so-called reclamation homestead (see page 161), which is a homestead made within the area of a government irrigation project, in which case the

homesteader is permitted to take an area not greater than the "farm unit" fixed for the project, and to pay to the Government the cost of a water right and for the maintenance of the irrigation system, the main charge being spread over a period of twenty years, without interest.

Another modification of the homestead is the so-called forest homestead, where an entry is allowed on a limited area, chiefly valuable for agricultural purposes, within the confines of a national forest.

Under the desert-land laws a citizen of the United States may enter 320 acres; he pays twenty-five cents an acre down on making his entry and $1.00 per acre additional when he makes final proof four years later. In the meantime he must spend not less than $1.00 per acre per year on the land looking to its reclamation. He must procure a sufficient water supply for the permanent reclamation of all the irrigable portions thereof and must have cultivated at least one-eighth of the land by irrigation before he can procure title. No residence on the land is required. Under a modification of this law, known as the Carey Act, lands are granted to arid states on condition that the states shall procure the reclamation of the lands and dispose of same to actual settlers, not more than 160 acres to each. Idaho, Wyoming and Montana have accomplished the largest and most satisfactory results under this form of procedure.

The mining laws have not changed much since the enactment of the general mining code of 1872. Under these laws title has its inception in discovery. A man who discovers a lode mine may locate a claim of approximately 20 acres on each discovery made. To retain this claim he must perform at least $100 worth of work thereon each year. When he has performed $500 worth of work on a claim he may receive patent on the payment of $5.00 per acre. Under the placer mining laws, which now include petroleum, a person may locate 20 acres, or an association of persons not exceeding eight may locate an association claim of not more than 20 acres for each person in the association. On the performance of $500 worth of work and improvements on the claim, patent may be granted on the payment of $2.50 per acre.

Under the coal land laws, a person may file on 160 acres and may receive patent on payment of the appraised value. Likewise a person may file on 160 acres of timber land on the payment of the appraised value thereof. The more valuable timber lands have been placed in forest reserves, the timber being sold outright from time to time as the market requires. Experience has demonstrated that the existing laws with respect to coal, oil, gas, potash, phosphates and nitrates no longer meet the demands of the industries based on these resources, and Congress has had under serious consideration radical changes in

the laws relating to these minerals and has already passed a comprehensive coal leasing law for Alaska, and a law for leasing potash lands in the states. The impracticability of existing oil land laws is the basic cause of the recent unfortunate controversy over our public oil lands and production.

There are many other public land laws, but those above touched upon are by far the most important to the country at large.

Department of Labor.

The Information Division of the Department of Labor has ascertained the lands still available for the "would-be settler" all over the United States. This Division has a complete record of all lands either to be had free or for sale. It is thus able to place men who seek land in touch with the parties who have the same at their disposal.

Roosevelt Dam, Arizona. Principal engineering feature of the Salt River Valley where 200,000 acres have been reclaimed through the Reclamation Service.

A group of small farms reclaimed from desert by the Reclamation Service.

CHAPTER II.—IRRIGATION OF ARID DISTRICTS AT ACTUAL COST

Reclamation Service.

The Reclamation Service is engaged in making the arid lands of the West fit for cultivation by means of irrigation, the lands then being thrown open for entry to applicants at the actual cost of construction per acre. The patents for these lands are granted by the General Land Office. (See page 153.)

The Government is spending millions of dollars in furnishing an adequate water supply for these regions. Its engineering works are stupendous in character and include several of the largest storage dams in the world, as well as thousands of miles of great canals. Since its creation in 1902, the bureau has reclaimed 1,250,000 acres of desert, has established 30,000 families in homes of their own, the annual harvests from these reclaimed lands having a value of nearly $50,000,000.

The fund provided for this work is formed from fees derived from the disposal of public lands in the 16 states benefited, and as the settlers repay the cost the receipts are returned to the fund for other work. The investment at present exceeds $120,000,000.

Conditions for the taking over of irrigated lands are that the applicant must be a citizen of the United States, must not have a farm elsewhere, must live on his ground for a period of three years, and must pay the Government the cost of the irrigation system on his farm in instalments covering a period of 20 years without interest.

The prices differ, but they average $50 per acre, becoming the actual property of the settler with a perpetual water right. The Government merely provides the land and water system, the farmer needing sufficient capital to pay for his house, stock, etc. It must be borne in mind that directly he begins to plant his crop his acres usually rapidly increase in value from year to year. And for these areas he has only paid the Government a small advance on the cost of irrigation.

It is interesting to note that the railways have in each case connected up with these Government communities, generally in advance of the settlers in order to provide the necessary transportation facilities in anticipation of the large quantity of tonnage to follow.

In instances where the Government has been requested so to do, it has provided lands for consolidated schools and community center sites for clubs, etc., also giving the water supply needed for these, which is of great service.

Instead of each district having its own school in

the one teacher system, the Government is encouraging the building of one large school to provide a centralized graded school system according to conditions existing in the particular state. The children are then to be brought to the schools by vans, autos, trolley lines, or other means of transportation, also kept up on a community basis.

In settlements where the Government has developed electric power for its own projects, the surplus power is sold to the settlers at cost. In some of these far-away communities the houses are lit with electricity, even the cooking, churning, sewing machines, etc., being worked by this power. Stores and homes are even frequently heated by electricity.

Bureau of Plant Industry.

The Reclamation Service receives the cooperation of the Department of Agriculture and the State Agricultural Colleges with regard to assistance given farmers on these irrigated lands. For the last 15 years it has been carrying on very careful experiments in methods of farming irrigated areas, and has now published a general basis for agricultural work for the settlers who very often have no knowledge or experience whatsoever of the practical work that will be required of them.

A demonstration farm, conducted by experts, is maintained on almost every project, many of the farmers being so untrained that practical demonstration is needed in order that no time should be

lost if the settlers' small capital is to be saved. The method of working with a farmer was very similar to the work done by the Demonstration Agents. (See page 125.)

CHAPTER III.—THE FOREST SERVICE WORK FOR THE SETTLER

Among the resources of the National Forests are minerals. Lands in the National Forests may be prospected upon and mined as freely as though they were on the open public lands and a prospector can stake a claim wherever he finds evidence of valuable minerals.

Forest Service.

The conditions for the taking up of a mining claim are those which prevail under the "Mining Laws" administered by the General Land Office. (See page 154.)

The only restriction is that the claims must be bona fide ones and not taken up for the purpose of acquiring valuable timber or a town or power site, or to monopolize the water supply on stock range. Prospectors may obtain a certain amount of National Forest timber free of charge, to be used in developing their claims. More than 426 mineral claims were patented within the National Forests during the year 1917.

Land more valuable for agriculture than for timber is excluded from the National Forests so far as is possible when the boundaries are drawn. Small tracts of land which cannot be thus excluded are

open for settlement under the Forest Homestead Act. (See page 157.) The chances offered the prospective settler in the immediate vicinity of the forest are far better than in the forests themselves.

Homestead settlers may obtain National Forest timber for their own use at the actual cost of making the sales, no charges being made for the timber itself.

The Forest Service helps the settler by building trails, roads, and bridges, constructing telephone lines, by protecting the forests from fire (see page 46), and other ways.

All the benefits that the Forest Service offers the farmer would also apply to the settler. (See page 45.)

CHAPTER IV.—THE WORK OF THE GEOLOGICAL SURVEY

Geological Service. The work of the Geological Survey is of the greatest importance to the settler in every phase of his work and choice of land. This subject is dealt with in detail (see page 215).

PART III

THE MAN IN BUSINESS

CHAPTER I.—GENERAL ASSISTANCE AND INFORMATION GIVEN TO THOSE TRANSACTING BUSINESS AT HOME AND ABROAD

The Bureau of Foreign and Domestic Commerce.

The Bureau of Foreign and Domestic Commerce is charged by law with the duty of developing the various manufacturing industries of the United States and markets for their products at home and abroad by gathering and publishing useful information or by any other available methods.

The Bureau is, therefore, in the first instance, a clearing house for commercial information of all kinds and has a well-organized and efficient system for its collection and distribution.

The work of the Bureau can be divided as follows:

"Trade Opportunity" Service. The Bureau furnishes American manufacturers and exporters definite information as to specific opportunities to sell their goods in foreign markets and places them in touch with firms and individuals in other countries who are in a position to act as agents or representatives in their districts. Announcements of such op-

portunities are published in the daily "Commerce Reports." (See page 177.) The names and addresses of foreign concerns desiring goods of agencies are not given in these announcements, but are furnished to bona fide American firms upon application to the Bureau at Washington, or to any of its district or cooperative offices.

In applying for such names and addresses the inquirer need only refer to the number of the announcement as published in "Commerce Reports."

A separate application on the firm's letterhead should be made for each "Opportunity" desired. The following may be considered typical of the "Opportunities" published in "Commerce Reports":

> 359709.—A man in New Zealand is in the market for trotting goods, such as hobbles, pads, gaiters, etc. Quotations should be made F.O.B. steamer, port of shipment. Cash will be paid with order.

The American manufacturer of trotting goods who thinks it worth while to make such a connection will, upon seeing the notice in "Commerce Reports," write to the Bureau on his business letterhead asking to be furnished the name and address. If the Bureau sees no reason for withholding the information, it sends it forward at once.

Following is an "Opportunity" to establish a business connection in Brazil:

35613.—An Agency is desired by a firm in Brazil for the sale of industrial chemicals, caustic soda, soda ash, acetic acid suitable for the textile and soap industries, and all kinds of dyes suitable for cotton textile industry. All business is desired on a commission basis. Cash will be paid. Shipments are preferred through some reputable export house which understands documentation for Brazil. Correspondence may be in English. Reference.

When the confidential information furnished regarding an "Opportunity" for sales in foreign countries is too detailed to be given in a "Trade Opportunity" announcement, it is embodied in a confidential bulletin or circular, which is sent to firms that are listed in the trade index files maintained by the Bureau in its district and in cooperative offices.

Samples, specifications, etc., that accompany reports from Consular officers, Special Agents, and Commercial Attachés are sent to the district and cooperative offices for limited periods, where they can be inspected by those interested.

The information upon which the "Trade Opportunity" service is based is collected and forwarded to the Bureau by mail or cable by Consular officers, Special Agents, and Commercial Attachés.

Sources of Foreign Trade Facts. The Bureau has three principal sources from which it obtains trade information from foreign countries.

First, Consular Service. (See page 184.) The United States Government maintains abroad nearly three hundred Consular offices, and in addition many agencies. These are all under the direction of the State Department, but the commercial information gathered through the "field force" is by law turned over to the Bureau of Foreign and Domestic Commerce for distribution as it sees fit. The commercial information from this source includes annual reviews of commerce, special reports on timely and important subjects called for by the Bureau, lists of importers, notices of bids for contract work, requests of merchants to be placed in communication with American exporters, etc.

Second, Special Agents. Most of these men are taken from active work in some particular industry or some special branch of commerce and are experts in their respective lines. They are assigned to certain specified districts such as the Far East or South America, and are required to report on the requirements of the markets for the lines that they are investigating, including the methods of merchandising and the character of the competition which may be expected. Local methods of manufacture are also studied. The scope of such investigations has recently been broadened to include studies of economic and financial conditions. Special Agents are also known as Commercial Agents, or Trade Commissioners.

Third, Commercial Attachés. While stationed at one post, like the Consular officer, the Commercial Attaché is free to travel in the field to which he is assigned. He has but one function, the facilitation of commerce between the United States and the countries which are included in his district. Unlike the Consular officer, he is free from such routine work as invoicing exports to the United States and looking after the wants of fellow-countrymen. If necessary, he can drop everything else and devote his entire attention to some one important trade development. He has been termed a "trade diplomat."

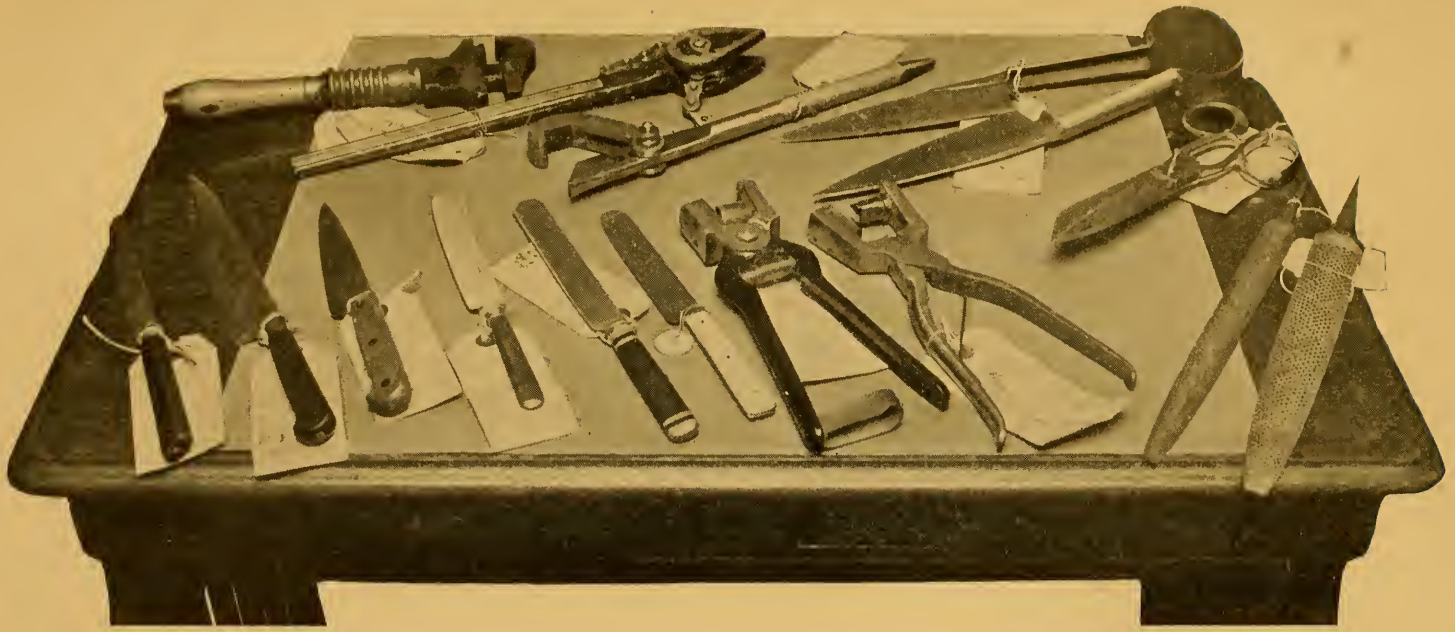
Commercial Attachés are stationed at London, Paris, Berlin (normally), Petrograd, Rio de Janeiro, Buenos Aires, Lima, Peking, Tokyo, and Melbourne.

In addition to writing reports to be published and distributed by the Bureau, the Consular officers, Special Agents, and Commercial Attachés return to the United States at convenient intervals and visit the principal manufacturing and commercial centers, where they address commercial organizations and give personal interviews to manufacturers and exporters. These itineraries are arranged by the Bureau at Washington, but the details of arranging for addresses and interviews are worked out by the District and Cooperative offices, whose business it is to keep in close personal touch with the business interests in their communities.

Collection of Samples. The samples purchased by the Consuls, Agents, and Attachés are first exhibited in the principal manufacturing centers and then housed permanently in what is known as the "Sample Room" at the New York Customs House. These samples consist for the most part of articles that are successfully sold in foreign markets. For example, a special Agent who has studied the cotton goods markets in all parts of the world has forwarded samples of the goods in demand in each market, with data as to cost, wholesale and retail prices, measurements, country of origin, etc. In the course of a recent investigation of the world's hardware markets, conducted by the Commercial Attaché, samples of hardware were purchased in all countries and with complete data now form a part of the permanent exhibit. Such samples are consulted by manufacturers and exporters who wish to estimate the character of the competition they have to meet in new markets and the tastes of the consumers.

The Bureau also receives numerous official and other publications from foreign countries which are utilized in answering requests for information. It also avails itself of trade journals published in this country and the assistance of commercial organizations.

Publications. Information collected by the Bureau is distributed chiefly through its publications,



Samples of European Hardware sold in South America. Gathered by the Bureau of Foreign and Domestic Commerce.

which include a daily trade newspaper, monthly, quarterly, annual statistical publications, and special bulletins.

The daily trade newspaper is called *Commerce Reports.* It contains articles submitted by the Consular officers, Special Agents, and Commercial Attachés, and trade information from other sources. At least a page each day is devoted to the "Trade Opportunity" service. (See page 171.) It is the organ through which current information on foreign trade matters is distributed to American business men. It is sold by the Superintendent of Documents, Government Printing Office, Washington, for $2.50 per year. (Subscriptions may also be received at the District and Cooperative offices.) The annual reports of Consular officers formerly published in this daily journal now are issued as Supplements to it and are mailed to all subscribers.

A publication known as *Monthly Summary of Foreign Commerce of the United States* gives the imports and exports of the United States by countries of origin and destination, articles, quantities, and values for the month of issue and for the accumulated period of the year ending with the month of issue, with comparative figures for corresponding periods in the two preceding years. It is sold by the Superintendent of Documents for 15 cents per copy, or $1.50 per year.

Imports Entered for Consumption, which is is-

sued quarterly, gives a detailed statement of the quantity and value of imports entered for consumption into the United States, the rates of duty and the amount of duty collected. It is sold by the Superintendent of Documents for 75 cents a year; single copies 15 cents to 25 cents.

"Commerce and Navigation" is the title of an annual volume of about 900 quarto pages, which gives detailed statistics of the foreign trade of the United States, stating the countries to which each article or class of articles was exported and from which each article or class of articles was imported during a five-year period. It is sold by the Superintendent of Documents for $1.

"Statistical Abstract of the United States" is an annual volume of about 800 pages containing a condensed statement of the commerce production, industries, population, finance, currency, and wealth of the country, with summary statements of the commerce of the principal foreign countries. It is sold by the Superintendent of Documents for 50 cents.

Bulletins on Special Subjects. Special bulletins published by the Bureau embrace a wide range of subjects and range from 16 to more than 500 pages. Some present a survey of the entire world's markets for certain lines of goods; others contain an intensive study of particular fields and particular

lines; still others furnish a general study of some country or groups of countries.

For instance, bulletins have been issued on the cotton goods trade of almost every country in the world; other bulletins deal with cottonseed oil, lumber, shoes and leather, machine tools, paints and varnishes, motor vehicles, musical instruments, canned goods, etc.

In 1911 the Bureau issued a Trade Directory of the World, and in 1914 and 1915 the sections of this World Trade Directory covering South America and Central America and the West Indies were revised and published as separate directories under the titles "Trade Directory of South America" and "Trade Directory of Central America and the West Indies." The World Trade Directory issued in 1911 is of course out of date and its use at this time is not recommended. The supply of the Latin-American directories is also exhausted. Copies of these directories are, however, available for examination at the Bureau's District and Cooperative offices and at the principal commercial organizations in the United States.

In transmitting reports on markets for specified commodities in foreign countries, American Consular officers and the Bureau's traveling representatives frequently accompany these reports with lists of importers and dealers in the respective lines under discussion. These lists are not published in the

"Commerce Reports" but are referred to by number at the close of the article, with the suggestion that interested firms and individuals may obtain the list on application by number to the Bureau or any of its District or Cooperative offices. The Bureau has naturally accumulated in this way quite a collection of possible purchasers of American goods in foreign countries. These accumulated lists are classified and are available on request.

Statistical Division. The Statistical Division of the Bureau is the original source of statistics of American trade with foreign countries. Export statistics are compiled from the declaration required from exporters by the Customs Division of the Treasury Department and the import statistics are based upon invoices that are received at the Customs Houses as a part of the routine of collecting the customs on imports. Returns from all the Customs Houses are received at Washington and the various compilations based on them are published periodically (see statistical publications described on page 178).

Division of Foreign Tariffs. This Division furnishes the American exporter with information as to customs and other entrance requirements imposed by foreign countries. It also specializes on foreign patent and trade-mark legislation, and recently has taken steps to protect American holders' trade-marks against infringement in other countries. For

instance, in some countries the ownership of a trade-mark is based on priority of registration and not of use, as is the case in the United States, so that a person who registers the mark first has the right to keep the rightful owner from importing into the country goods bearing the registered trade-mark. The Division of Foreign Tariffs now scrutinizes carefully all applications for trade-marks in certain countries. When it finds an application for the registration of our American trade-mark or a close imitation, it notifies the American owner of the mark, explains to him the main features of the trade-mark laws in the country in question, and urges him to protest the registration.

The Division obtains information from the Consuls, Agents and Commercial Attachés and from foreign official journals, newspapers, and other publications.

Mediation in Commercial Disputes. Through the Consuls, Special Agents, and Commercial Attachés abroad and its district offices at home the Bureau is able to act as mediator in many disputes arising between the foreign importer and the American exporter. It often happens that disputes of this kind lead to ill feeling, which affects not only the particular house against which the grievance is held, but also American exporters in general. Arbitration disposes of the dispute without necessarily removing the ill feeling. When one of the Bureau's

representatives abroad discovers dissatisfaction he gets the facts in the case and reports to the Bureau in Washington, which then directs the District or Co-operative office in the exporter's district to take up the matter personally with the American firm. The Bureau does not take sides in such cases, but has at heart only the best interests of American business. Its representatives assume no legal responsibility or attributes.

Latin-American Division (see also Pan American Union, page 186). Because of the unusual interest shown in recent years in the markets of South America, Central America and the West Indies, the Bureau maintains a Latin-American Division, in which is concentrated the information concerning such markets. This Division, in addition to receiving information from the usual sources, subscribes to many Latin-American newspapers, magazines, and official journals. It answers all inquiries from American business men concerning commercial and industrial conditions in the Spanish-speaking republics.

A Far-Eastern Division, similar in scope to the Latin-American Division, has recently been organized.

Branch Offices. The main office of the Bureau is in Washington, but it has District Offices in New York, Chicago, New Orleans, San Francisco, Seattle, Boston, and St. Louis, and Cooperative Offices

in Cincinnati, Cleveland, Los Angeles, Philadelphia, Chattanooga, Portland (Oregon), and Dayton, through which it disseminates trade information and keeps in touch with the commercial interests of the country.

The District Offices are maintained entirely at the Bureau's expense, but the Cooperative Offices are really foreign trade departments of local commercial organizations, working in cooperation with the Bureau. The official in charge of such offices is paid by the local organization, but his appointment must be approved by the Bureau.

These branch offices were established to expedite the distribution of commercial information, to ascertain the needs of the business men of the country, and to establish closer cooperation between the Government and private agencies interested in the extension of foreign trade.

Each office has on file confidential information regarding "Trade Opportunities," lists of importers in foreign countries, trade directories, etc.

Each District Office receives specifications, samples, exhibits, etc., for a limited time and these may be inspected by interested persons.

Each office, as has already been mentioned, arranges conferences between exporters and returned Consular officers, Special Agents and Commercial Attachés when the latter visit District Offices during

leave of absence in this country. Foreign buyers are encouraged to make their headquarters at the offices and if they so desire are introduced to American manufacturers.

Each office makes a special study of the needs of the District in which it is located and the Bureau endeavors to equip each office to meet the demands peculiar to its field.

Each office keeps on file all publications of the Bureau, as well as publications of other branches of the government that would be of assistance to American exporters.

All questions involving the rights of American citizens in foreign countries and all matters involving their interests abroad are under the jurisdiction of the State Department, to whom they may apply for advice and assistance. A large part of this work is performed through the Consular Service.

State Department.

Consular Service. The duties of the United States Consuls abroad are of a varied nature and may be described as follows:

(1) They furnish to any American citizen information concerning the commercial conditions throughout the country in which they are stationed, especially with reference to their own particular district. They should be in such close touch with the importers of that country that they are able not only to answer inquiries but can from time to time

report on matters of business interest to the United States.

The consuls not only give information in person to the business man but they answer in detail any letter that may be addressed to them concerning the territory to which they have been sent. They are, therefore, well informed concerning every angle of business as well as other subjects which might interest a citizen of the United States.

(2) They report regularly concerning trade opportunities.

(3) Many of the Consuls abroad have established in their offices reading rooms containing American commercial papers and catalogues, which are of the greatest interest to business men. In cases where this may be of special importance they send such catalogues to individuals.

(4) The Consular Service is charged with the duty of certifying to commercial invoices of all goods of foreign origin destined for shipment to this country, to the effect that the prices are current as given by the invoice in the market in question.

(5) Should an American citizen die abroad, leaving no legal representative in the country where he dies, the Consul looks after the interests of American heirs, pays the debts of the deceased and turns the proceeds to the American heirs, thus acting as a quasi-administrator, provided the authorities of the

country in which he is stationed offer no objections.

(6) Consuls also maintain registers wherein American citizens resident in their districts are recorded after the question has been favorably passed on by the State Department.

Pan American Union.

The Pan American Union is an international organization with headquarters in Washington, D. C. Its purpose is to promote peace, friendship, good understanding and the consequent closer relation socially and commercially among the 21 republics forming the Union. These are United States, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Salvador, Uruguay and Venezuela. It is controlled by a governing board, with the Secretary of State of the United States as ex-officio the presiding officer, and the diplomatic representatives of the above mentioned republics of the Western Hemisphere. Its executive officers, who are elected by the governing board, are a Director and an Assistant Director, who are directly responsible to this board for the active work of a staff of editors, statisticians, trade experts, translators, librarians, compilers, clerks and assistants employed to carry out the purposes of the organization.

Expenses of maintenance are borne by the countries of the Union, each country being assessed its

quota according to its population, the United States, therefore, paying the largest share. The work of the Union may be described, generally speaking, as follows:

It acts as a general bureau of information for all the countries of the Union, its average mail handled each day, including letters, pamphlets, telegrams, packages, etc., being about 1,000 a day.

As the Union by no means exists solely for the promotion of commerce between the Republics, the inquiries encouraged and answered concern education, art and all matters of general interest.

The Union maintains a special service for manufacturers, business men and others intending a visit to South America, in order to give expert advice concerning rates of travel, routes and conditions of trade in the various South American countries.

An extensive library has been collected to assist in supplying the desired information. This library contains over 40,000 volumes on American subjects, over 1,500 maps and a collection of over 20,000 photographs, depicting different phases of activity of the people in Latin-America and the United States.

In the reading room of the Pan American Building are to be found the daily papers of the larger cities of South America and the Island Republics of the West Indies and a large number of magazines in Spanish, Portuguese and French.

The information collected by the Union is distrib-

uted through its publications and through its service to the newspapers and periodicals of the country forming the Union.

The most important of these publications may be said to be its monthly illustrated magazine known as the Bulletin of the Pan American Union. This publication is printed in four different language editions, i. e. English, French, Spanish and Portuguese. These different editions are not merely translations of identical contents, but each edition is specially adapted to its circulation. Matters that have no particular value in Spanish-speaking countries or in Brazil may be of great interest in the United States, so that frequently articles are written for the English edition which are not given in the Spanish, Portuguese or French editions. Commercial usages, simple geographical data, etc., relating to the countries of South America are matters of common and general knowledge in those countries, but are of great interest to the people of the United States. On the other hand, new inventions that have just been placed on the market of the United States are at once brought to the attention of English-speaking people in hundreds of publications of the United States, but may remain unknown in Latin-American countries for some time. The Bulletin publishes illustrations and descriptions of many such important inventions in its Spanish, Portu-

guese and French editions every month, omitting such material from its English edition.

However, there are many articles specially prepared for the Pan American Union by experts in their respective fields which are of interest to the people of all the countries, and these are published in every edition. These cover a wide field, and concern the latest feature of trade and international commerce, published with illustrations secured from original sources, descriptions of leading cities, articles dealing with archaeological discoveries.

Supplementing the work of the magazine are various other publications. Among these are a series of illustrated pamphlets dealing separately with each of the twenty Latin-American countries. These pamphlets give a brief historical sketch of the country and explain briefly its political government and educational system; briefly describe the climate, agricultural and mineral resources, the transportation facilities, chief cities and ports and recent progress in general, and give accurate commercial data as to the imports and exports. These pamphlets are distributed free to those inquiring for them.

Another series of pamphlets dealing with the more technical trade matters of the tariffs, customs laws, etc., of each of the countries, and are specially prepared for exporters and others interested in foreign trade. These tariffs and customs laws are translated from the official publications of the respective coun-

tries dealt with and are, therefore, of absolute accuracy.

Another series of pamphlets deals with special products of the various American Republics, such as rubber, coffee, Paraguayan tea, tobacco, cotton, etc.

The Pan American Union regularly provides "press releases" to the newspapers of the United States and all the American countries concerning any occurrence, or development of commercial, social or economic importance that has a news value not strictly political in character. These are prepared for publication in such form that they need not be rewritten. They are mailed in the English version to some 2,000 papers in the United States, in Spanish to over 900 of the leading papers of Spanish speaking countries, and in Portuguese to some 350 papers in Brazil and Portugal, while the French release is sent to a more limited number of publications in Haiti and France. The releases concern such matters as the exploitation of a new industry or the remarkable growth of an old one: the recent great development of the cattle industry of Brazil, the tea industry of Brazil and Paraguay, the cattle and sheep production of Uruguay, the nitrate situation in Chile, and hundreds of similar subjects have formed the topics of newspaper releases.

Official reports on exports and imports of each of the countries of the Union are compiled by the

statistical staff from original sources and are published annually. Laws governing colonization, mining, admission of foreigners to practise various professions in the several countries, and those in relation to patent rights, copyrights, etc., are also carefully compiled and kept for reference purposes.

The Pan American Union cooperates in the conducting of all kinds of conferences relating to Pan American commerce and finance in connection therewith. It may be mentioned that it organizes, prepares the program, preserves the records and executes the resolutions of the great international conferences of the American Republics held at varying intervals.

The Director-General of the Union and various members of the staff, when called upon, make addresses before chambers of commerce, business men's organizations, etc., on subjects dealing with phases of Pan American relations and activities to arouse interest among the people of the United States in their sister republics.

Tariff Commission.

The United States Tariff Commission is a permanent and independent commission of the Federal Government, created by Act of Congress, approved September the 8th, 1916.

The Commission has no administrative, legislative or judicial power or duty. It is an investigating body, and exists solely for the gathering of informa-

tion and suggesting of recommendations, for the benefit of and at the request of either the public or Congress with regard to all questions of tariff. Up to the present it has been almost impossible to obtain complete information on contested questions of tariff, and to ascertain what were the unquestionable facts.

The law provides more specifically that the Commission is to investigate and report on the administrative and physical aspects of the customs laws, their effects on the industry and on the labor conditions of the country, the relations between rates of duty on raw materials and those on finished or partly finished products, the working of ad valorem and specific duties, the arrangement of the schedule and classification of articles.

The Commission further has authority to investigate and to make reports on the tariff relations between the United States and foreign countries, on commercial treaties and economic alliances and similar subjects.

It has already begun a thorough investigation of the reciprocity treaties and the commercial policy of the United States and the European countries. Still more, it has undertaken to inquire independently what are the plans and expectations of the various countries in this connection in regard to the future.

The Commission has already begun the prepar-

ation of a catalogue of tariff information, which will become a handy source of reference for information on the several phases of the tariff question. It is designed to have on hand in compact and simple form all available data on the growth, development and location of industries affected by the tariff, on the extent of domestic production, imports, and the conditions of competition between domestic and foreign products.

It is also designed to bring together in summary form information concerning each of the articles enumerated in the tariff laws. The catalogue will further contain references to additional sources of information received by the Commission, both in print and as documentary material.

The codification and simplification of the administrative laws relating to customs will also be worked out by the Commission.

The Commission is required to transmit to Congress in December of each year a report of its operations during the preceding year, with a summary of all investigations and reports made.

Patent Office.

The Government gives to the first inventor—through the Patent Office—the exclusive right of making use of or selling his invention for seventeen years for a fee of thirty-five dollars. As the inventor thus has a monoply of his invention, it is possible for him to interest capitalists to invest their money and develop the in-

vention for the purpose of putting it on the market, without the risk of some other manufacturer becoming his rival, after he has demonstrated its popularity.

The development of the art of invention has been extraordinary since the patent systems of the world were started.

The Government of the United States is now issuing about forty thousand patents each year, for which about one thousand employees are engaged.

Bureau of Standards.

The service of the Bureau of Standards indirectly or directly affects every individual in the United States. Measurement is the basis of all land survey, including the location of property; measurement is the basis for the manufacture and sale of practically all commodities; measurement underlies alike the prescriptions of the physician, the formulas of the chemist, the specifications of the jobber, the plans of the architect, the contracts of the builder, and the statistics of the Government. Transportation rates are regulated by the weight and distance of shipments. Likewise in the use of heat, light, and electricity, measurements form the basis for manufacture, sale and use. These are a few of the many examples of the use of measurements in regulating human activities.

For every kind of measurement there are measuring appliances which must be capable of measuring accurately and uniformly throughout the country.

Each kind of measurement, therefore, requires reference to a single ultimate standard for the entire country. These are maintained at the Bureau of Standards. This service is provided by Congress and without special action or request on the part of the general public.

The design, construction, and standardization of the great variety of measuring instruments used in a thousand industries involve technical knowledge and the application of fundamental scientific theory. This requires the Bureau to maintain a corps of trained scientists experts in all branches of physics, chemistry, and engineering.

The services of the Bureau are available to manufacturers in perfecting their methods of manufacturing measuring appliances, to the inspectors of weights and measures for standardizing methods for testing the measuring appliances used in trade, and to the general public in furnishing information along every line affecting standards or measuring instruments.

The Bureau also confers with public service commissions which represent the people in regulating the basis of standards of quality for such public utilities as gas and electricity.

Any citizen is entitled to come to the Bureau for advice within the Bureau's field. If the Bureau can refer the inquiry to a more direct source of information, this is done. But thousands of letters are

written annually to the public in answer to technical questions involved in ordinary measurements.

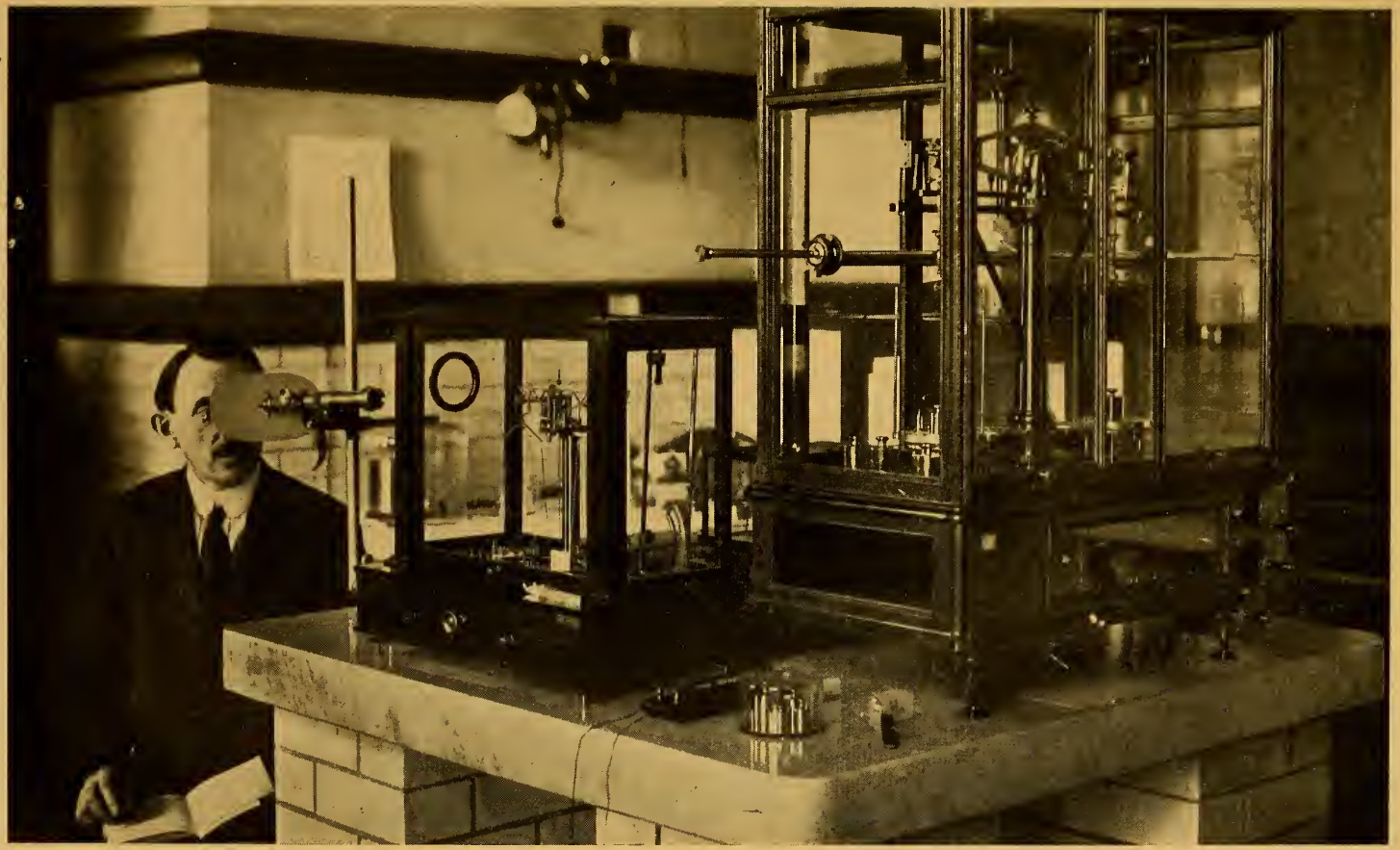
The Bureau's most important work, however, is in laboratory research into the scientific principles of measurements. Such research affects primarily the designers of measuring instruments and those experts who make use of such measuring instruments in the factory, the laboratory, or in the markets.

The Bureau has more than 500 separate publications, containing the results of scientific and technical researches, and also a number of popular circulars which set forth in simple language some of the results of the Bureau's work. (See page 329.)

The work of the Bureau, broadly speaking, can be divided as follows:

(1) It furnishes all state governments with standardization service for the state government standards deposited by the national Government in the capitols of all the states.

The Bureau furnishes extra advice to larger municipalities and assists in installing city inspection service for trade weights and measures. Sealers often visit the Bureau to study at first hand its methods of standardization. The Bureau issued instructions for the guidance of sealers, holds conferences and has published a manual which will assist sealers to become expert in the inspection of trade weights and measures.



Standardizing Precision Weights at the Laboratory of the Bureau of Standards. The observer is using a telescope to read the position of the balance arms.

By means of the above two methods of work the Bureau assists in the control of the accuracy of yardsticks, liquid and dry capacity measures, weights and balances used in the entire retail business of the country. The purpose is to promote justice in daily trade through systematic inspection and regulation.

The Bureau compares the standards by which manufacturers make the measuring appliances of daily trade. At their request the Bureau also assists in the matters of fixing the sizes of measuring appliances. For example, the recent Standard Barrel Act put the problem of administration up to the Bureau. The barrel makers appealed to the Bureau for assistance. The Bureau worked out charts, diagrams and formulas and sent its experts to the barrel factories to assist the makers in determining accurately the size of their product. A similar service is rendered to the makers of weights and balances and large scales. Here faulty design is pointed out and the Bureau has issued specifications to guide the manufacturers in improving the product.

The Bureau tests the instruments which are used in scientific laboratories for measurement. Precise measurement underlies all scientific research and the kinds of measurement have been multiplied in recent years. For each kind of measurement there must be clearly defined units, reliable and

durable standards and accurate and convenient methods of measurement, together with special apparatus and measuring appliances to be used in the actual measuring.

The old weights and measures, length, weight and capacity no longer serve even for the purpose of daily trade. We now measure area, pressure, density, heat, light, electricity, and radioactivity.

(2) The Bureau studies the data relating to the accurate knowledge which forms the basis of every industrial process. The purpose is to give investigators an accurate starting point; to give the industries the means by which they can secure consistently uniform and high quality in their products, for instance in the quality of steel rails, of rubber goods, of paper, paints, textiles, and materials of every sort.

For example, the elasticity of spring steel must be accurately known if the watchmaker is to make accurate timepieces. The strength of steel must be known accurately if bridges and skyscrapers are to be safe, or if tools and appliances are to be reliable, etc.

(3) The Bureau is working in developing standards of quality. The measure of quality is a distinctly modern achievement. The aim is to fix or describe in measurable terms a group of properties which determine the qualities. For instance, a paper should have a certain thickness, a certain color, a

certain weight, a certain strength and a certain resistance to bursting stress; each of these can be measured and specified in a contract made with a paper maker. To describe every kind of material for all its varied uses would involve, say, more than a hundred thousand separate items for the national Government alone.

To give a practical instance of the Bureau's work: the Bureau secured the cooperation of the government, the makers and users of Portland cement and the technical experts on cement. By means of conferences, laboratory and field experiments, standards of quality of Portland cement were agreed upon for the Government and for engineers. The standards were published by authority of the President, and the standard has now become the basis of buying and testing this important material. A similar illustration may be cited, namely, the establishment of standards for electric plants.

This work, by setting an attainable standard, insures high utility in the products of industry, furnishes a basis for fair dealing which avoids disputes and settles differences and encourages truthful advertising.

Furthermore, quality standards are a direct means of avoiding waste in science and industry. For example, a factor of safety of 200 per cent. or 300 per cent. has to be allowed in structural engineering in designing and constructing bridges and

buildings. The reason for this waste of material is the lack of standard data as to the exact strength of the columns. If a column is crushed in a testing machine it is no longer fit for use. If, however, the strength of the column could be assured in advance by a standard composition for the steel, a standard heat treatment and an exact knowledge of the effect of the shape of the column upon its strength, it would be possible to save a large percentage of the material which must be allowed as a factor of safety.

Likewise, if a cutting tool, such as a drill, is made of a steel whose strength and hardness are of a standard magnitude (conformed to a standard quality) the performance in actual service could be predicted. If the standards of quality in the output are assured in the mill, by a scientifically planned process, and a measured control of each step, it would scarcely be necessary to test the output. Such mill control, or standards of process, are not yet scientifically planned or in operation, so that some testing is essential. The Bureau of Standards has developed a magnetic test by which the hardness of the drill can be determined without damage to the drill. This is of the utmost importance in machining expensive appliances, where the breaking of a drill may ruin a piece. The establishment of standards of quality, and the technical provision for ensuring them in mill practise, will eventually mean a saving of enormous losses in a thousand lines of

industry, and ensure efficiency in all the operations which depend upon the quality of such products.

(4) The work of the Bureau of Standards of performance is similar to the work on standards of quality. Quality applies to material, performance to a machine. In modern practise technical experts begin to realize that performance can be accurately measured. The mileage of a tire is a measure of tire service. The mileage of gasoline is a measure of the efficiency of the motor and gear of an automobile. Sometimes performance can be simply specified, as in the case of a tuning-fork. In other cases, it may involve thousands of measurements to fully describe the speed, uniformity, output, economy, durability and the other factors which working together define the net efficiency of an appliance. The use of standards of performance will make exact knowledge the basis of the buyer's choice, it will stimulate and measure mechanical progress, and place every purchase upon a clear understanding between the maker, seller, buyer and user as to what can be expected of a given machine or appliance.

(5) Standards of practise represent another very important phase of the Bureau's work, and is similar to the standards of performance and quality. Two publications have been issued in connection herewith and the cooperation of many national organizations was secured in developing these, entitled "standards for Electric Service" and

"Standards for Gas Service." In each case there is set forth an impersonal standard to ensure effective design and installation, promote safety and convenience, and to secure a uniform practise as fully as possible. The extension of this work is to include interurban trolley service and telephone service, which will mark an important step forward in the promotion of the public interest.

Bureau of Crop Estimates.

The work of the Bureau of Crop Estimates (see page 24) is of great interest to large manufacturing firms, agricultural implement concerns and hardware companies who neither buy nor sell farm products. The knowledge given them by an estimate of crop prospects enables them to distribute their wares economically, sending much to sections where crops are good and farmers will have money with which to buy and less to sections where the crops are short and farmers will have less to spend.

The railroads of the country which move the crops from the farms to the markets must know in advance the probable size of the crop, in order to provide a sufficient number of cars to handle it effectively and without delay. Cases are not infrequent when the prices of grain at railroad stations are reduced or there is absolutely no sale for the grain because cars are not available for shipping.

Prompt and reliable information regarding crop prospects is also important and valuable in the con-

duct of commercial, industrial, and transportation enterprises. The earlier the information regarding the probable production of the great agricultural commodities can be published the more safely and economically can the business of the country be managed from year to year.

Retail dealers in all lines of goods, whether in the city or in the country, order from wholesale merchants and manufacturers the goods they expect to sell many weeks or months before the actual purchase and shipment. It is therefore important that they have the earliest possible information with regard to crop prospects and the probable purchasing powers of the farmer.

The work of the Bureau is also largely used by those who deal directly in the products of agriculture, such as millers, speculators, etc. Large financial institutions, the Federal Reserve Bank officials, etc., also make use of the reports to a large extent.

Weather Bureau. The reports of the Weather Bureau (see page 15) are used as follows by the business man, states the Bureau's pamphlet on this subject:

The daily maps and bulletins and the general bulletin and reports containing statistical data are used by the grain and cotton brokers, who are guided largely by the forecasts in their operations.

The data regarding rainfall and snowfall are ex-

tremely useful in planning irrigation enterprises and selecting reservoir sites and are studied in connection with the construction of water works, bridges and sewers. They are also necessary in dredging operations, the location of walls, construction of dams and in practically every phase of bridge building and general improvement.

They are also used by bond and investment companies in determining the loan values of farm lands in newly opened countries.

The railway and transportation companies make continued use of the forecasts in all their shipments. Perishable products are protected against temperature extremes by icing or heating, as conditions may require. Oftentimes shipments of perishable goods are accelerated when it is found possible to carry them to their destination in advance of the expected unfavorable temperature conditions. When this cannot be accomplished, goods en route are run into roundhouses for protection. An advance notice of a cold wave will also often hold up a contemplated shipment until after the freeze has passed, and if the cold is protracted the companies will refuse to receive consignments of goods likely to be injured by low temperatures. These precautions apply in some instances to prospective temperature changes within comparatively narrow limits.

The daily forecast and report of general weather conditions likewise assist in determining the points

to which many shipments of perishable articles are directed, in order to meet the irregular demands that are frequently dependent upon the kinds of weather that prevails in a given section. The movement of eggs kept in storage, for instance, is largely regulated by temperature changes, the announcement of a cold wave being usually followed by brisker shipments from Western supply districts to the Eastern markets in anticipation of a rise in prices.

The uses made of temperature forecasts in the cities are of a very varied character and concern every phase of city life from the merchants' point of view—from the coal dealer to the ice man.

The river and flood service of the Weather Bureau is organized with its principal headquarters at Washington, D. C., and subsidiary district centers at advantageous points on the respective rivers along which a service is maintained.

About 60 district centers are maintained outside of Washington, D. C.

Measurements of precipitation on the headwaters of the streams and observations of the height of water on the gauge at upstream points are collected by telegraph or telephone from about 540 substations and serve as the basis for warnings of floods in the lower reaches of the streams. A second useful purpose is served on navigable streams, viz., that of giving notice of boating stages during the low-

water season. These flood warnings are indispensable to all river industries, as well as to the operations carried on in the lowlands subject to inundation. The issue of the flood warnings is followed by the removal of cattle from bottom lands and by the saving of such crops as can be cut before the high water reaches the threatened district. Foreknowledge of the expected river stages is also of great advantage in determining whether or not it will be advisable to undertake farming operations in the regions subject to overflow. In the cities the flood service often enables the merchant to save goods kept in the basement or streets likely to become flooded. The service is also of great assistance to the lumberman with regard to the cutting of his timber in the swamps, etc.

The fishing industry is greatly benefited by this service, as the rise and fall of rivers in many cases determines the haul of the fish.

Census of Population. In the tenth year of each decade the Bureau of the Census makes an enumeration of the population of the United States, and of each state, municipality, county and township, or similar county subdivision. This enumeration covers not merely the actual numbers of persons living in these various geographical units, but also their "composition and characteristics" as to sex, age, color or race, birthplace, birthplace of parents, native languages, con-

Bureau of the Census.

jugal condition, school attendance, literacy, ability to speak English, ownership of homes, and occupations, and, in addition for the foreign born, length of time in the United States and status as to citizenship.

The figures as to the total populations of the various municipalities, etc., are obviously of immense value to all large manufacturers and dealers; and while some of the detailed statistics are useful chiefly to educators, students, economists, sociologists, etc., nevertheless many of them are helpful to the business man as well. For example, a manufacturer seeking a suitable location for a new plant will want to know not merely the total populations of the places he has under consideration, but also the numbers of natives and numbers of foreigners, the numbers of young and middle-aged persons, and the principal occupations of the inhabitants. All these data he can easily obtain from the census reports, which are published not only in large bound volumes that may be consulted at leading libraries throughout the country, but also in paper-bound bulletins that may be obtained without charge from the Census Bureau upon request.

Census of Manufacturers. Every five years the Census Bureau collects statistics of manufacturers, covering such matters as number of establishments; proprietors, officials and employees; character of ownership (corporate, firm, individual, or other);

capital invested; salaries and wages paid; cost of materials and fuel; kind and amount of power; kinds and values of products and quantities of principal products; hours of labor; etc.

These statistics, like those relating to population, are published in large bound volumes, and also in the form of paper-bound bulletins. The latter, which are distributed free upon request, relate to individual states and to individual industries; and the state bulletins contain separate figures for cities having 10,000 or more inhabitants. The last census of manufacturers related to the industrial operations of the complete calendar year 1914; and the next, which will form a part of the coming decennial census, to be taken in 1920, will cover the manufacturing operations of the year 1919.

The great value of these statistics to manufacturers, dealers and business men generally, especially when considered in connection with the annual statistics of imports and exports published by the Bureau of Foreign and Domestic Commerce, of the Department of Commerce, is so obvious as to need no comment.

Census of Electric Light and Power Stations and Electric Railways. Every five years the Census Bureau publishes statistics relating to central electric light and power stations and electric railways (including all street railways, whether electrically operated or not). These statistics show, for electric

light and power stations, such items of information as the following: numbers of commercial and municipal stations; character of ownership of commercial stations (whether corporate, firm, individual, or other); data as to stations operated in connection with railways; equipment; output (in kilowatt hours); capitalization; cost of construction and equipment; income and expenses; employees; salaries and wages; number of customers; and a comparison of central electric stations and gas plants.

The report presenting these statistics also contains a section entitled "Technical Aspects of the Period," which consists of a technical discussion, with illustrations, of the advances made and the improvements that have come into use during the preceding five years.

The report relating to street and electric railways presents statistics as to trackage, motive power, and rolling stock; traffic; electrically operated divisions of steam roads; municipal railways; elevated and subway railways; urban and interurban railways; equipment; output of power stations (in kilowatt hours); capitalization and cost of construction; income and expenses; employees; salaries and wages; sale of current by electric railway companies; etc. This report also contains a section devoted to the technical advances made in the industry during the preceding five-year period.

The next report on these industries will cover the industrial operations of the calendar year 1917.

Statistics of Telephones and Telegraphs. In connection with the census of electric light and power plants and electric railways, data are gathered in regard to telephone and telegraph companies (including cable and wireless) and municipal electric fire-alarm and police-patrol signaling systems. The report on these subjects covers finances, amount of business done, equipment, employees, salaries and wages, etc., for the Bell, independent and governmental telephone systems and for commercial and governmental land, ocean-cable, and wireless telegraph companies; and shows the number of systems, mileage of overhead and underground wire, amount of other equipment, number of signals or alarms, etc., for municipal electric fire-alarm and police-patrol signaling systems.

Statistics of Water Transportation. Every ten years there is published a report relating to water transportation. This report presents, for the various classes of American-owned craft of five gross tons or more, engaged in coastwise or foreign trade, statistics as to ownership (corporate, firm, individual, or other), construction, number and tonnage, valuation, power, income, employees, wages, freight and passengers, Congressional appropriations for development of inland waterways, etc. In addition, similar information, so far as practicable, will be

given in the forthcoming report, which will cover the calendar year 1916, for American fishing craft.

The report for 1916 will also present statistics for the shipbuilding industry, covering the construction and repair of vessels of all classes, whether for operation on the waters of the United States or in foreign trade.

Statistics of Fisheries. Another investigation made at ten-year intervals by the Census Bureau is that relating to fisheries. This is conducted in cooperation with the Bureau of Fisheries. The report gives detailed statistical information as to capital and equipment; number and occupational status of persons engaged; salaries and wages; species, quantities, and values of products; exports and imports; etc. The next report relating to the fishing industry will cover the calendar year 1918.

Statistics of Mines and Quarries. As a part of each decennial census—that is, each census of population, manufactures, etc., taken in a year divisible by ten—there is made an inquiry relating to mines, quarries, and oil and gas wells. The last report on this subject, which covered the industrial operations of the complete calendar year 1909, presented statistics showing the geographical distribution and number of mines, quarries, and wells; capital; character of organization (corporate, firm, individual, or other); number of operators, proprietors, officers, and employees; salaries and

wages; hours of labor; kinds, quantities, and values of products; cost of supplies and materials; expenses; power; etc.

Statistics of Municipal Finance. The Bureau of the Census makes annual collections and publications of financial statistics for cities having 30,000 or more inhabitants. These statistics give a complete presentation of the financial transactions of all cities of the size specified, showing assessed valuation of taxed property, taxes levied, amounts derived from other forms of revenue, expenditures for current purposes, outlays for permanent improvements, indebtedness, assets, etc. These statistics, while primarily of value to city officials and others especially interested in municipal finance, are of considerable value also to the business man, since by consulting them he can ascertain whether a given city is conducting its fiscal affairs in a businesslike and economical manner.

Statistics of State Finance. The Census Bureau also publishes annually a report presenting, for the several states of the Union, statistics similar in scope to those given in the reports on municipal finance, just described.

Periodical Cotton and Cotton Seed Statistics. At slightly varying intervals, averaging about two weeks in length, the Census Bureau collects and publishes figures showing the amounts of cotton ginned to specified dates, a total of ten such reports

being issued during each ginning season in the form of post cards, which are mailed to large numbers of growers, dealers, and others interested in the cotton industry. At monthly intervals the Bureau collects and publishes in post-card form statistics relating to cotton consumed, exported, imported, and on hand and active cotton spindles; and statistics pertaining to cotton seed and its products. It also publishes quarterly statistics relating to the consumption of cotton, cotton fiber in the manufacture of explosives and of raw cotton in the manufacture of absorbent and medicated cotton. An annual bulletin is issued, in which are presented, in amplified form with text discussions, the various statistics published at intervals during the preceding year, together with other information not given in the periodical reports. This bulletin shows cotton and linter production; number and average output of ginneries; weight and estimated value of upland and sea-island cotton and seed; acreage and production of each cotton state; average grades and prices; consumption of cotton and linters in manufacturing industries; number of active spindles; exports and imports of cotton and its manufactures; number of establishments crushing cotton seed; quantities of seed produced and crushed and of linters obtained; and kinds, quantities, and values of cotton-seed products.

Statistics of Tobacco Stocks. At quarterly in-

tervals during the year the Bureau collects statistics concerning the quantities of leaf tobacco of all forms held by manufacturers and dealers in the United States. The reports, which are issued in post-card form, show the number of pounds of leaf tobacco on hand, classified according to principal chewing, smoking, snuff and export types, principal cigar and import types.

CHAPTER II.—SPECIAL WORK DONE FOR VARIOUS INDUSTRIES

(*a*) *The Mining Industry*

The mining industry is second only to agriculture, with an annual mineral production now ranging between $2,000,000,000 and $3,000,000,000, and including over 100 minerals and with about 90,000 producing firms employing hundreds of thousands of miners.

Geological Survey.

The Government early recognized the need of obtaining accurate information concerning the natural resources of the country. Many of the first investigations were made by expeditions sent out by the Army or Navy, but civilian scientists were afterwards attached to these expeditions. After the Civil War and the opening of the great unknown Western territory, expeditions that were primarily scientific were sent out. In 1879, acting on the advice of the National Academy of Sciences, and impressed with the need of a permanent Bureau for the collecting and disseminating information on the nature and resources of the country, Congress created the Geological

Survey. This organization was planned to have charge of the classification of the public lands and the examination of the geological structure, mineral resources and products of the national domain.

The law by which the Geological Survey was organized provides broadly for the classification of the public domain, in connection with the enforcement of the public land laws which depend on the character of the land. (See page 153.)

The land is classed according to the various laws, as "Homestead Land," "Mineral Land," "Desert Land," "Dry Land," etc.

Whether the settler gets his land from the Government or buys it from other holders, the information obtained regarding the geological structure, mineral resources, etc., is at his disposal to assist him in the purchase and development of his land.

One of the chief methods of making available to the general public the result of the work of the Geological Survey is by means of maps. For the making of these it employs more than 150 topographic engineers and many more temporary field assistants who are engaged in making topographic base maps of the United States, a work in which many of the individual states cooperate with the Survey. Over 2,500 of these maps, representing about 40 per cent. of the area of the United States, have been published and the map work is progressing at the rate of 20,000 square miles a year.

These topographic maps are printed in three colors so as to distinguish clearly the three kinds of features shown. Black is used to indicate roads, houses and names—the human features of the map—and blue is used to indicate the streams and lakes and other water features, and brown is used to indicate the hills and valleys, whose elevations are shown by means of contour lines.

The topographic map is an accurate relief model of the area map, there being no part of the area shown on the map whose altitude above sea level is not indicated. It is a complete dictionary of altitudes for the entire area of the country. The Survey's topographic map taken as a whole forms an atlas composed of thousands of sheets and is the detailed base map of the country.

The surveys for each of these maps are made at a cost of $3,000 to $5,000 and they show every physical feature of the area it covers, every streamlet and hill, every crossroad and farmhouse, in its exact relative position to all the other objects in the area. These maps can be bought at the nominal price of ten cents and the Survey sells more than half a million maps a year.

This serves as a base on which can be represented the features relating to many of the subjects that have been investigated, as, for instance, the kind and distribution of the rocks, the economic resources, and facts of geographic significance.

The method of making the maps is as follows:

The area to be mapped must first be located on the earth's surface geographically. This involves the determination of the exact position in latitude and longitude by astronomic measures of a point on or near the area to be mapped, from which the location of all the other points are determined. In addition the exact elevation above the sea of certain selected points must be ascertained. These lines ramify throughout the United States and range in elevation from the lowest point in Death Valley, which is 276 feet below the level of the sea, to the summit of Mt. Whitney, 14,501 feet above sea level, the highest point in the United States south of Alaska.

The permanent records of work of this kind are left in the country mapped in the form of bench marks—plates giving the elevation of the particular spots marked to the nearest foot. The Survey has set 30,000 of these bench marks which are used as starting points for the various engineering works—by ranches in planting the irrigation system, by the engineer in locating a petroleum pipe-line route, by the sanitary engineer in building a city sewer and by the mining operator in figuring the tonnage of ore or fuel yet in the ground.

Following the work of the topographer comes the work of the geologist, who observes and locates on the topographer's map the distribution of the

various kinds of rocks. The work of the geologist is widespread and extends into every state in the Union and into Alaska and Hawaii. As a result of these geologic explorations and investigations made by the Survey, maps representing thousands of square miles are published each year. They are applied to many uses. Maps of areas that include pools of oil and gas show the lay of the rocks deep below the surface and the places at which further drilling is most likely to result in producing wells. Maps of coal lands show what areas are underlain by coal, and many of them indicate the depth of the coal below the surface. Such a map is accompanied by a report which, if it covers a coal field, gives the data for determining the tonnage of coal within any part of the area covered. Some of these maps show not only where water-bearing formations outcrop, but how deep they lie below the surface and how far a man must drill to get water. Maps of many mining districts show the localities most favorable for prospecting for ore deposits.

Where the geologist leaves off, the mining engineer takes hold, and in examining and appraising a mineral property the mining engineer uses the map and report of the geologist. The same may be said of the constructing engineer, who uses the map showing the rock structure or the character of the foundation upon which he must build.

The Geological Survey has thus mapped and re-

ported on hundreds of thousands of square miles of the United States, showing the location of coal beds, phosphate beds, iron ores, gold-bearing rocks and placers, silver, copper, lead and zinc-bearing rock, limestone, marble, granite, slate, in fact every kind of precious and useful mineral from rare minerals, such as radium ores and gem-bearing formations, to common brick-clay deposits. It has been possible to estimate the reserve supply of some of the minerals in the ground, both that of local deposits and the total for the country as a whole.

Investigations of mines by geologists to determine the quantity of ore available and its geological occurrence are of great importance to all those in any way interested in mining. The information thus acquired is of value in determining the best way of developing a deposit and indicating places where similar types are to be looked for with the probable conditions to be encountered.

Considerable information concerning the deposits of minerals is gathered by the Geological Survey and given to the public by means of its publications, various maps and correspondence. The work of the Geological Survey in this respect can be classified as follows:

(a) The geographic distribution of deposits, which furnishes information concerning those places from which certain supplies can be secured, thus eliminating the search in unpromising areas. With

a complete inventory of the places where the desired mineral occurs, the miner, the investor, and the user of this particular mineral knows where to search for same. The facts are acquired by the geologists in the course of the numerous field investigations that are constantly in progress. Although new information may disclose new deposits, the general distribution of all the more important minerals in the United States has already been fairly well worked out.

(b) The extent of the various mineral deposits is of nearly as vital importance as their location. The business man needs to know the size of the deposit he is developing or using. The determinations of extent must take into account not only the horizontal or surface extent of the deposit, but must predict so far as possible the vertical extent of the deposits in question. Geological insight and interpretation are required for this factor and the work is therefore done by geologists specially trained through long experience in dealing with deposits of similar character in all parts of the country.

(c) The necessity for knowledge concerning the geologic mode of occurrence of deposits is that a thorough knowledge of the known deposits is necessary in order to predict conditions which will be encountered in undeveloped deposits. Therefore a large part of the Survey geologist's investigations must regard the conditions shown in developed

mines. This knowledge must be used not only in further scientific studies, but must be presented to the business man so that he can draw his inferences regarding the deposit he is contemplating developing or using.

(d) The statistical work of the Survey regarding the uses and quantities of mineral deposits is greatly used by the mining industry. The Survey is in close personal touch with practically all the individual mine owners and operators and collects from them information which is compiled by trained geologists, competent not only to properly classify each year's production, but to discuss its relation to the nation's and the world's reserve of mineral wealth. The Survey's volume, "Mineral Resources," is in fact an annual encyclopedia and inventory of the nation's mineral resources.

The results of the statistical inquiries are making the Survey more and more used as a clearing house of information concerning the mineral resources of the country. The information is made available to inquirers through formal publications and correspondence, giving detailed information such as the location of deposits of minerals, both those that are developed and those that are undeveloped, and the names of those who can supply the different minerals. At the present time statistics regarding nearly 100 separate mineral products are compiled and technical details concerning each received and

made available for general use. (See also page 211.)

Further publications of the Survey are the reports on its work issued as monographs, chapters and volumes on mineral resources, folios, professional papers, bulletins, annual reports and water supply papers and special publications, as well as maps. (See page 216.) All these are free of charge, with the exception of a few which are sold at a nominal charge.

The Geological Survey receives about 13,000 letters each month and more than that are sent out in reply or to initiate investigations. Of this number about a half relate solely to requests for publications, the other half of the correspondence relating to technical and scientific inquiries. These inquiries vary greatly in their scope and in the subject matter —covering all phases of the Survey's activities.

Bureau of Mines. The Bureau of Mines was created not only to reduce the death toll among the miners (see page 281), but to assist the manufacturers of the country in industrial research.

For instance, in regard to coal mining.

Before the Bureau was created coal was bought either under a trade name, or merely as coal, irrespective of its heating value. Through results of the work of the Bureau most of the industries throughout the country are now buying coal on what is known as a specification basis, which states a

minimum number of British thermal units acceptable and also a maximum amount of ash. If more heat units are furnished, a premium is paid; if less heat units, a penalty. This also applies to the amount of ash.

The Bureau maintains at Pittsburgh, Pennsylvania, its principal experiment station, where investigations into the theory of combustion are made. The result of these investigations has been to teach the engineers and firemen economical methods of burning coal.

In order that the big consumers of coal may obtain coal that is suitable for the special design of furnace used, the Bureau some years ago began a systematic sampling of all that was mined in the country. It has already issued several reports containing the analyses of these coals, which have led to a more intelligent and a more economical purchase thereof. From the analyses of the Bureau an engineer may learn where he can purchase coal suitable for his purpose at the cheapest price. A New York manufacturer may have been purchasing coal from a West Virginia mine, and learn that he may purchase a quality equally as good from Pennsylvania with much less haulage and transportation charges.

The Bureau of Mines has conducted research work to show how deposit of high grade ores may be treated more economically and has endeavored

to find processes whereby the millions of tons of low grade ores might be commercially utilized.

The Bureau now has seven experiment stations, scattered throughout the country, whose duty it is to work on metallurgical problems. By a law enacted in Congress two years ago, ten experiment stations were provided for, to be established three each year, and in many instances these act in cooperation with mining companies.

The Bureau, realizing the enormous losses in the production of petroleum and natural gas, some years ago undertook a systematic campaign of education regarding these. Expert oil-well drillers were employed by the Bureau and sent to the various fields to introduce what is known as the "mud-laden fluid method," which is now in general use, and waste of fuel has now been stopped to a very great extent.

Investigations made by the Bureau of Mines and the Geological Survey have caused experts to believe that the country has now reached the maximum of its production of petroleum, and that there may be a steady decline in the yield. The Bureau of Mines is, therefore, endeavoring to find other resources for the gasoline which comes from petroleum.

Interesting experiments were made by the Bureau concerning radium, the results of which have been that radium can at least be supplied to the

hospitals of the Army, Navy and Public Health Service at a cost of one-third of the price at which it has been obtained from foreign producers.

The Bureau is also making successful experiments with regard to the production of potash.

The results of all the investigations of the Bureau are published for the benefit of the general public, more than a million publications being distributed each year. The greater bulk of these goes to men connected with the various industries which have been benefited by the researches of the Bureau.

(*b*) *The Fishing Industry*

Bureau of Fisheries. The work of the Bureau of Fisheries forms one of the earliest and most effective conservation movements undertaken by the Federal Government.

Its establishment was due to the widespread opinion that fisheries in general were diminishing in value and importance on account of the intensity and methods with which they were being developed. The investigations carried on by the American Fisheries Society confirmed this fact and largely through the influence and representations of states' fishery officers, Congress passed a joint resolution, approved in February, 1871, which provided for the appointment of a commissioner of fish and fisheries, who was directed to conduct investigations concerning

the facts and the causes of the alleged diminution and to recommend measures to remedy the same.

Until July 1, 1903, this organization was known as the United States Commission of Fisheries, but on the organization of the Department of Commerce and Labor it was included by law in the new Department and the name was changed to Bureau of Fisheries. When the Department was subdivided, the Bureau was retained in the Department of Commerce.

The original conception of the Bureau was a body for scientific statistical and practical investigation of the fisheries and that phase of its work has always been prominent; but it was soon found that to secure the practical end which dictated its formation it would have to be given additional functions. This was in part accomplished by an Act approved on June 10, 1872, which gave authority for the propagation of food fishes, a branch of the service which has grown until at present it constitutes the largest part of the Bureau's activities.

The policy has been to carry out the idea that it is better to expend a small amount of public money in making fish so abundant that they can be caught with a minimum of restriction and serve as cheap food for the people at large than to expend a much larger sum in preventing the people from catching the few fish that still remain after generations of improvidence. Public or government fish culture

has in America attained tremendous proportions and exceeds in extent and importance that of all the other countries combined.

Scientific Division. The scientific work for which the Bureau was originally created has grown greatly in both quantity and scope. It embraces a study of the habits, distribution, diseases and classification of fishes and other aquatic animals, especially those of commercial importance, and of their food and enemies. As any organism is controlled more or less by its environment, the study of a commercial species involves investigation of the other animals and plants with which it is directly or indirectly associated and of the physical and chemical characters of the waters in which it lives. The information necessary as a basis for the conservation and improvement of the fisheries, therefore, covers a wide field in aquatic biology, physics and chemistry which is embraced in the scientific work of the Bureau.

Division of Inquiry Respecting Food Fishes. This Division continues the work for which the Bureau was originally instituted. The scientific work covers the field of aquatic biology. In order to understand the requirements for the protection and fostering of the fishes it is necessary to know not only the complete life histories of all the species of direct economic value, but also the habits, food and

enemies of those species, and their relations to their physical and biological environments.

This Division also conducts investigations and experiments tending directly to the increase of economic aquatic animals, especially those which, like sponges, oysters, mussels and terrapin, are from their habits and nature not susceptible to the ordinary method of fish culture.

The investigations and experiments are conducted by field parties or at the biological stations. There are also one specially equipped steamer for deep-sea investigations, one for coastal work and a number of smaller craft for inshore and river duty.

The small permanent staff which is concerned chiefly with the work of more direct economic application is supplemented when occasion arises by the employment of experts and investigators from scientific institutions.

An important feature of the work of this Division lies in furnishing to the several states advice and facts relating to fisheries legislation and administration.

Some of the practical scientific aids which the Bureau has extended the fisheries in recent years consists of the location of new fishing grounds, the development of markets and means of using wasted or neglected fishery resources; the development of methods of sponge, terrapin, and fresh-water mussel culture; causes of disease in fishes; surveys of

oyster bottoms and recommendations for their conservation and utilization; recommendations for state fishery legislation, etc.

Statistical Division. This Division performs another of the original functions of the Bureau. The first duty to which the Bureau of Fisheries was assigned, namely, the investigation of the reported decrease of food fishes in New England, necessarily involved the collection of statistics of production, personal, and capital. Since that time this branch of the work has been conducted without interruption, and in it have naturally been included the various other subjects affecting the economic and commercial aspects of the fisheries. Among its functions are: (1) a general survey of the commercial fisheries of the country; (2) a study of the fishery grounds with reference to their extent, resources, yield, and conditions; (3) a study of the vessels and boats employed in the fisheries, with special reference to their improvement; (4) a determination of the utility and effect of the apparatus of capture employed in each fishery; (5) a study of the methods of fishing, for the special purpose of suggesting improvements or of discovering the use of unprofitable or unnecessarily destructive methods; (6) an inquiry into the methods of utilizing fishery products (including recipes for the cooking of fish, see page 328), the means and methods of transportation, and the extent and condition of the

wholesale trade; (7) a census of the fishing population, their economic and hygienic condition, nativity, and citizenship; (8) a study of international questions affecting the fisheries; (9) the prosecution of inquiries regarding the fishing apparatus and methods of foreign countries.

Periodical canvasses are made usually by geographical regions, namely, the New England States, Middle Atlantic States, South Atlantic States, Gulf States, Pacific Coast States, Mississippi River and Tributaries, Great Lakes, minor interior waters, and Alaska. In the last few years unusually comprehensive statistical reports have been published on the oyster, menhaden, lobster, shrimp and freshwater mussels. This statistical information is not only of immediate interest to the fishing industries, but is highly important as a basis for determining the necessity and the measures for the regulation and conservation of the fisheries.

Fish Culture. The Division of the service covering Fish Culture has under its direction all operations connected with the artificial propagation and distribution of fishes. Its practical work in 1917 was conducted through 55 fish cultural stations, and 94 sub- or field-stations, located in 35 states and the territory of Alaska and six specially devised railway cars engage in distributing their products.

It is the endeavor of the Bureau to hatch and plant fishes in sufficiently large numbers to com-

pensate for the reduction of the natural supply through the fisheries and the volume of its output has steadily increased until in 1917 it aggregated 5,158,963,293 fish and eggs. These operations have materially benefited some fisheries and have saved others from complete extinction.

This Division has also carried on particularly successful work in introducing valuable fishes in waters to which they were not indigenous and in rescuing fishes in overflowed lands where the recession of the waters would leave them stranded to die. This part of the Bureau's work is carried on independently or, where public interest dictates, in cooperation with the states.

The stocking of waters with food fishes is a direct benefit to the public not only in increasing the material that supports an enormous industry but in providing food and recreation for the individual who will use his hook and line.

Fish cultural stations are established by Act of Congress and their locations and construction are determined by the Bureau after a careful survey of the available site in a given state. In addition to the regular hatcheries with their regular staff and living quarters, there are maintained numerous hatcheries or substations which from the nature of their work do not require a permanent force and are therefore for economic and administrative considerations operated as adjuncts of nearby hatch-

eries. There is still another type of culture station, known as Field or Collecting Stations, which serve as temporary headquarters for parties engaged in obtaining eggs from wild fishes.

Fishes are distributed at various stages of development according to the species, the numbers in the hatcheries and the facilities for rearing. To insure the best results from plants of fish, applicants are required to furnish full information as to the physical character and present inhabitants of the waters to be stocked, and a suitable species of fish for planting therein is determined by the Bureau. Black bass, for instance, are not furnished for waters stocked with trout, which they would destroy. Nor are trout consigned to waters already inhabited by predaceous fishes. The number of fish allotted to any applicant is governed by the available supply of that species and the area and character of the water in question. The Bureau attempts only to furnish a liberal brood stock, expecting that the fish will be protected until they have had time to reproduce.

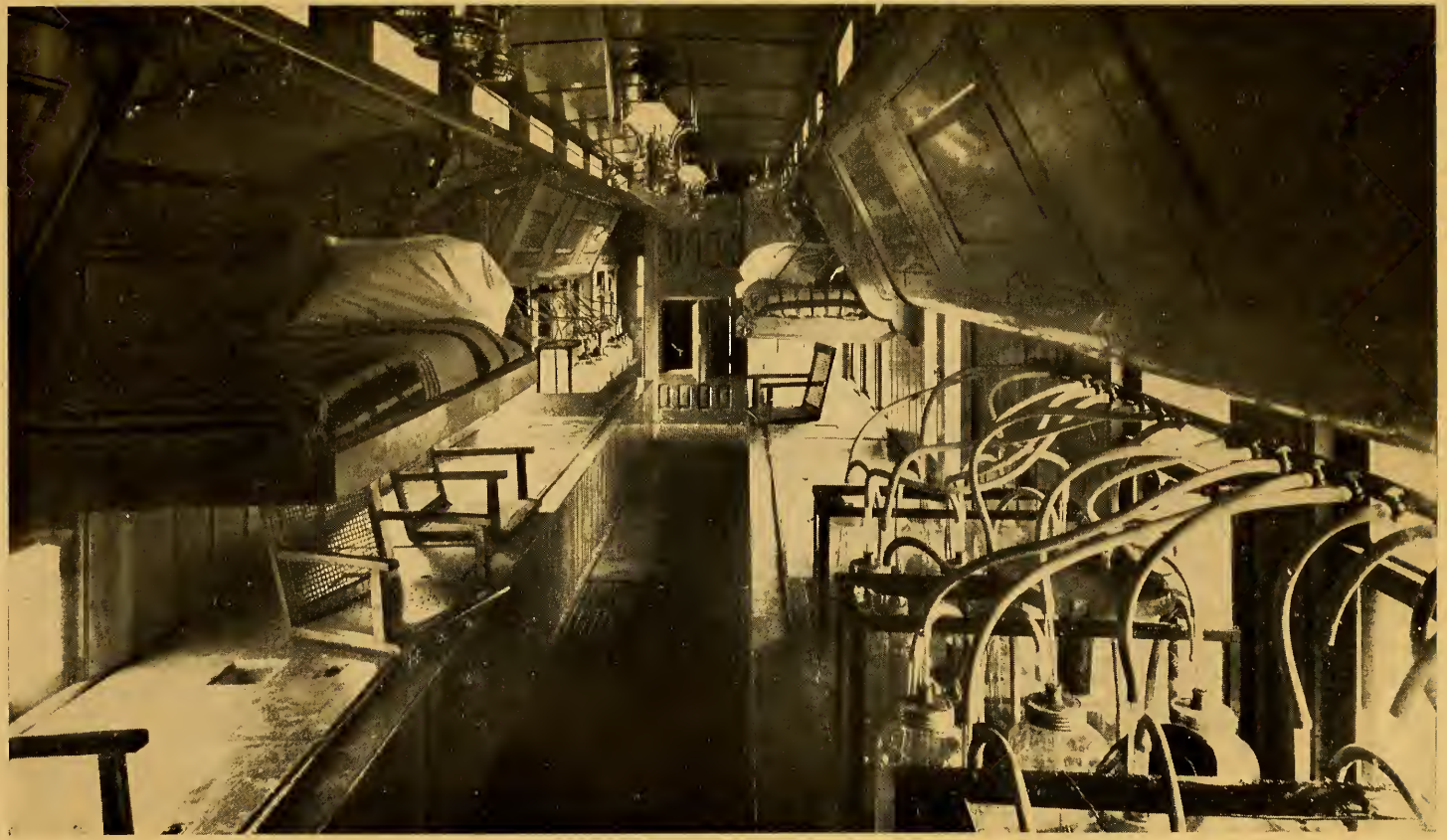
The first consideration in the distribution of fishes is to make ample returns to the waters from which eggs or fish have been collected. The remainder of the product is consigned to suitable public or private waters. All the applications for fish for private waters and many of those for public streams and lakes are transmitted through and receive the endorsement of the United States Senator or Repre-

sentative. The fish are carried to their destination in railroad cars or by messengers who accompany the shipments in baggage cars. During the year 1917 the Bureau received 9,771 applications for fish.

Fish are delivered to applicants free of charge at the railroad station nearest the point of deposit. For this purpose the Bureau maintains a special car and messenger service, which is one of the most important branches of the fish cultural work. In the early days baggage cars were employed, but these have now been supplanted by an equipment which not only affords more safety to fish and comfort to attendants, but makes it possible to transport the fish much greater distances and with smaller percentage of loss.

Until recently the Bureau of Fisheries had no executive duties in the enforcement of fishery regulations, although in its advisory capacity it exercised large influence over fishery legislation. It is now charged, however, with the enforcement of laws relating to the salmon fisheries and the fur-bearing animals in Alaska. (See page 235.)

The Salmon Service, besides being charged with the enforcement of laws and regulations relating to salmon and other fisheries of Alaska, supervises the inspection of fisheries, canneries, salteries, hatcheries, and other establishments. It also makes such investigations and experiments as may be de-



Fishing Commission Car for the transporting of fish.

sirable or necessary for the improvement and conservation of the salmon and other fisheries.

The publications of the Bureau of Fisheries consist of four series: (1) the annual reports of the Commissioner and various special reports on different branches of the work; (2) the annual bulletin, which is made up of papers on miscellaneous subjects, generally of a technical nature; (3) economic circulars, consisting of brief timely reports upon economic subjects; (4) statistical bulletins giving in tabular form monthly and annual statements of the quantity and value of fish and aquatic products landed at the principal fishing centers. (See page 211.)

(*c*) *The Fur Trade*

Bureau of Fisheries.

The Bureau of Fisheries is charged with the enforcement of laws relating to the fur-bearing animals in Alaska. It has entire administrative control over the Pribilof Islands, their native inhabitants and the fur-seal herds which resort to them during the breeding season. The islands of Saint Paul and Saint George were set aside at a special reservation in 1869, the entire group following in 1910, for Government supervision. The Islands are the only lands to which the Alaskan fur-seals go for breeding purposes, and the administration of a fur-seal service is concerned with the care and utilization of the seals, the taking

and marketing of the skins, the maintenance and education of the natives of the Islands, care and utilization of the fox herds and the protection of other animals found on the Islands. The sealing privileges were for forty years leased to private companies which paid the Government a tax on each seal. Since April, 1910, however, the Government has had in its own charge the business of taking and marketing seal skins.

For five years prior to August 24, 1917, by Act of Congress, the killing of seals was limited to such males as were required for food for the natives, but after the date mentioned, killing on a commercial basis was resumed.

It is the duty of this part of the service to see that the regulations for the protection of fur-bearing animals are observed, and to make investigations in regard to the abundance, distribution, habits, food, diseases, etc., and the condition of the fur in different localities at different seasons.

It is also the duty of the service to inspect as far as possible the furs offered for shipment from Alaska and to enforce the regulations concerning shipment.

Biological Survey.

The Biological Survey is carrying on extensive experiments in breeding fur-bearing animals for commercial purposes. These animals are kept in enclosures and various methods of feeding and handling them are being tested.

(*d*) *The Lumberman*

Ripe timber on the National Forests is sold at a fair price to the highest bidder. Anybody may purchase it, but no one can obtain a monopoly of it or hold it for speculative purposes. The fewest possible number of restrictions are imposed upon purchasers and only such as would insure the areas being left in the best condition for future growth. Experienced woodsmen estimate the quantity and quality of National Forest timber and its approximate value as a basis for the price to be charged, the price always allowing opportunity for a fair profit.

Forest Service.

Small sales of timber are made by forest officers on the ground to avoid delay. Larger sales are made either by the Supervisors of the forests, the District Forester, or the Forester, according to the amount desired.

These sales of timber of small amounts for local use are encouraged so that the National Forests may serve the small lumberman and consumer; nine-tenths of the sales are for less than $100 worth of timber.

The Forest Service collects and publishes statistics on the price of lumber at the mill and studies and publishes lumber specifications and grading rules. The experiments conducted at the Forest

Service laboratory are of great assistance to the lumberman. (See page 244.)

The Forest Service cooperates with private lumber land owners by furnishing advice concerning the best methods of managing and protecting their forest holdings. It also cooperates with them and the states in protecting from fire the forest cover on the watersheds of navigable streams.

(*e*) *The Shipper*

Shipping Board. The United States Shipping Board was founded according to the Act of Congress approved on the 7th of September, 1916. Under this bill its functions are as follows:

(However, the exigencies of war have placed upon the Shipping Board the obligation of providing ships for the transportation of troops, food, munition, etc., to which it has given its entire energy.)

(1) To regulate carriers by water engaged in foreign and interstate commerce of the United States and for other purposes.

(2) To make investigations as to the relative cost of constructing vessels at home and abroad; to examine the rules under which vessels are constructed at home and abroad; to investigate matters relating to marine insurance and the classification and rating of vessels.

(3) To examine the navigation laws of the United

States and make such recommendations to Congress as it may deem necessary for the improvement and revision of such laws.

(4) To regulate operations of common carriers in both interstate and foreign commerce, and provide penalties for the violation of its provisions. Carriers are required to file with the Board copies of any agreements they may have with other carriers or persons relating to the regulation of rates, pooling of earnings, number and character of sailings between various ports, etc.

(5) Sworn complaints setting forth violations of the Act may be filed with the Board by a common carrier by water or other person coming under the Act. A method is provided for the adjusting of such complaints.

(6) To investigate the action of foreign governments with respect to privileges afforded and burdens imposed upon vessels of the United States, and to make a report of the result of such investigations.

(7) Methods of enforcing the orders of the Board, whether for the performance of certain acts or for the payment of money awarded as damages by the Board are provided.

Coast and Geodetic Survey.

The Coast and Geodetic Survey is charged with the survey of the coasts of the United States and the coasts under the jurisdiction thereof, as well as the publication of charts covering same.

This Survey and its charts include a full and complete knowledge of the coast, its nature and form, the character of the sea bottom near it, the location of reefs, shoals and other dangers, the rise and fall of the tides, the direction and strength of currents and the character and amount of magnetic disturbance.

The Coast and Geodetic Survey publishes 650 different charts, distributing annually about 250,000 of such, which are used for the safe guidance of vessels not only by the Navy Coast Guard and Merchant Marine, but by privately owned vessels as well.

The publications of the Survey consist of annual reports, charts upon various scales (including sailing charts), general charts of the coast and harbor charts; tide tables issued annually in advance; coast pilots with sailing directions covering the navigable waters; notices to mariners (published jointly by the Survey and the Bureau of Lighthouses), which are issued weekly and contain current information necessary for safe navigation. It has also published about 1,350 technical publications.

Weather Bureau. The Ocean Service of the Weather Bureau collects through the cooperation of vessel masters and others observations at sea.

The recent developments in the art of radiotelegraphy has made it possible to transmit weather observations made by ships at sea to shore stations and from there by land lines to a central service.

The Weather Bureau has organized a system of observations on vessels navigating the coastal waters of the Middle and South Atlantic States, the Gulf of Mexico and the Caribbean Sea. The primary object of this is to gain information of sub-tropical storms which occasionally traverse the above-named waters. A similar service is also maintained on the Pacific coast.

Warnings of storms and hurricanes are issued for the benefit of marine interests and are of important pecuniary value. Storm warnings are displayed at more than three hundred points along the Atlantic, Pacific and Gulf coasts and the shores of the Great Lakes, including every port and harbor of any considerable importance. Scarcely a storm of marked danger to maritime interests has occurred for years for which ample warning have not been issued from twelve to twenty-four hours in advance. The reports from the West Indies are especially valuable in this connection, as they enable the Bureau to forecast with great accuracy the approach of those destructive hurricanes which during the period from July to October are liable to sweep the Gulf and the Atlantic coasts.

The sailings of the immense number of vessels engaged in ocean and lake traffic are largely determined by these warnings, and those displayed for a single hurricane are known to have detained on the

Atlantic coast vessels valued with their cargoes at over $30,000,000.

The Weather Bureau also reports vessels passing exposed points on the Atlantic, Gulf, and Pacific coasts to the owners and also to the great shipping centers.

(*f*) *Scientific Commercial Investigations with Agricultural Products*

Bureau of Plant Industry.

Scientific commercial investigations are being carried on by the Bureau of Plant Industry.

Important among these are the investigations made of tobacco. These were commenced in 1898, when it was found that the average yield of profit per acre was comparatively small, this being due primarily to the growing of mixed and undesirable types, failure to follow sound cultural methods, particularly in the matter of crop rotation and fertilization, damage to the crops from insects and disease and lack of understanding of the vital features of successful curing, fermenting and handling of the leaf. All of these problems are taken up, resulting in marked improvements in the old methods of tobacco production. The experiments and demonstrations show that the yield and value of the tobacco crop can easily be doubled by combining well-planned systems of rotation with the use of proper quantities and forms of commercial fertilizer.

Investigations are also being made with regard to the manufacture of paper with new plant products. Chemical and physical experiments are conducted in the investigation of plants to ascertain the best methods of treatment. Laboratory work in the manufacture of sample sheets of paper is done to demonstrate the value of process and product. Paper-making tests on a large scale are conducted in cooperation with manufacturers to demonstrate the value of material under commerical conditions of manufacture.

Experiments are being made with European oil plants not yet used in this country for the purpose of securing vegetable oils. Possibilities of producing oils from waste products, such as cherry stones, tomato seeds, etc., in connection with large canneries are also being tried out.

For the purpose of securing more uniform drugs, the Bureau is attempting the standardization of drug plants by determining which of them are susceptible of culture, and wherever possible the Bureau is advocating the use of special plantation drugs instead of wild drugs.

Bureau of Chemistry. The Bureau of Chemistry makes chemical investigations of a varied nature concerning agricultural commercial products.

Experiments with leather and canning are made to determine the effect of various canning processes and the disposal of cannery and leather wastes. As

a result, useful information is drawn up relative to the purchase of leather and leather articles and on the composition of these materials relative to quality.

The paper laboratory makes investigations to demonstrate the more rational and economical use of paper and the factors which control its suitability for certain purposes as well as its durability.

The waterproofing and mildewing of fabrics for farm use are being examined by the Bureau.

The Bureau is also conducting experiments on a commercial scale regarding the scarcity of dyes in this country.

Efforts are being made to improve the quality of rosin, turpentine and other wood products.

All such work is carried out by the Bureau of Chemistry in direct practise, working in cooperation with the manufacturer.

Forest Service.

One of the aims of forestry is to see that the products of the forest are put to their best use with least waste. Through studies of wood uses the Forest Service aids the wood-consuming industries to find the most suitable raw materials and to develop methods of utilizing their waste products. It also investigates methods of disposing of wood waste.

A Forest Products Laboratory is maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin. Here among other things the

physical properties of wood are studied, such as its strength. Studies are also made at the laboratory of its seasoning and kiln drying, its preservative treatment, its use for the production of paper pulp, fiber board and the like, and in the manufacture of alcohol, turpentine, rosin, tar and other chemical products. It also develops practical ways and means of using wood which under present conditions is being wasted.

The Forest Products Laboratory cooperates with consumers of forest products in improving the present methods of use; also in formulating specifications and grading rules for commercial woods and materials secured from them and for materials used in the preservative treatment of wood.

The information thus gathered it gives to the public through printed matter, correspondence and other means. Any one is at liberty to correspond with the laboratory about particular problems dealing with the utilization of wood and will receive an answer based on whatever information is available on the subject, free of charge. It is the policy of the Forest Service to secure to as large an extent as practicable the cooperation of the wood-using industries most directly concerned with the subjects or problems under investigation. The desirability of cooperation and its exact terms will be determined in each specific case.

The laboratory may on request examine the meth-

ods of individuals or companies in handling forest products and to prepare plans for improving such methods, provided that the purpose is primarily to reduce waste and to obtain information of general value to the industries concerned.

Re statistics collected and studies made information is given.

The Bureau of Chemistry does important work in cooperation with the producers on all raw material of food and drinks, from production to reaching the consumer, with the idea of a minimum amount of waste, such as the preparation of fruit sirups, vinegar, oils, canning processes of all kinds of food, etc. Studies are being made with regard to citrus fruits and the making of marmalade, which are to be submitted to practical manufacturers. Many such experiments for the utilization of fruits and vegetables are being made, for instance, potato drying for stock feed, the manufacture and utilization of potato starch, the preparation of cider in concentrated form by freezing, the composition of grape juice and the preparation of sirup from sugar-beets. All these investigations are made in cooperation with the manufacturer and any information concerning them is at the disposal of the general public.

The Bureau also does work with regard to the utilization of waste products not suitable for food. For instance, experiments of great value have been

concluded on citrus fruits which are in some way imperfect and unfit for food. The results of these experiments have developed improved methods for making marketable products such as citrate of lime, citric acid, etc.

In doing the regulatory work under the Food and Drugs Act (see page 331) the Bureau often discovers some defect in the making of a product. It has been found that manufacturers and dealers generally desire to comply fully with the law and handle only pure and standard products. Many of them, however, owing to a lack of technical knowledge or suitable equipment, experience difficulty in reaching the standard requirements of the law. The Bureau in such cases, where it seems of universal interest to the public, works with the manufacturer to assist him in finding a method of making the goods without defect.

Bureau of Entomology.

Scientific and practical investigations are made of bee culture by the Bureau of Entomology. Experiments are tried out concerning the best methods of caring for bees during the winter in all sections of the United States, the development of bees, the diseases of bees and their distribution and control.

Commercial bee-keeping on a large scale is studied and the results given to the farmers through publications and the work of the Demonstration Agents. (See page 125.)

(*g*) *Development of Hydro-electric Power*

Geological Survey.

The water resources branch of the Survey maintains about 1,300 gaging stations, to obtain daily records of the flow of most of the important streams. These records form the basis of all plans for work or operations that depend for success upon the quantity of surface water available. Special studies are being made in both the Eastern and the Western states to obtain reliable information in regard to the quantity of underground water available for irrigation and for domestic use. Samples of both surface and underground water have been taken at selected points throughout the United States and have been analyzed, so that a great amount of information on the quality of those waters is now available. These analyses have been extensively used in locating industrial plants, in determining suitable water supplies for boiler use, in selecting city water supplies, and in developing water for irrigation. In determining the utility of the water supplies of the United States, the Survey has collected much information in regard to storage, power possibilities and the classification of public lands with respect to the development of their water resources. Special reports have been prepared in regard to disastrous floods, and the records of the flow of streams were

extensively used in solving problems of drainage and navigation.

Forest Service.

The government permits private enterprises to develop the water power of the National Forests and there is relatively more hydro-electric development in the National Forests states than elsewhere. Permits for such enterprises usually run for a term of fifty years under certain conditions and may be renewed at their expiration upon compliance with the regulations.

As an example of power development on the National Forests, power is generated on the Sierra National Forests in California for use in the city of Los Angeles, more than 200 miles away.

(*h*) *National Parks*

National Park Service.

The National Park Service administers the National Parks which have been retained by the Government, of which there are seventeen in number as per table.

The Government has realized that these National Parks, if rightly handled, will become a source of national wealth as well as a means to popular pleasure, education and inspiration.

Besides promoting the building of hotels and camps enough to accommodate all the National Park visitors who want to come, the Government builds roads and trails throughout its National Parks to

National parks in order of creation	Location	Area in square miles
Hot Springs 1832	Middle Arkansas	1½
Yellowstone 1872	Northwestern Wyoming	3,348
Casa Grande Ruin 1889	Arizona	¾
Sequoia 1890	Middle eastern California	252
Yosemite 1890	Middle eastern California	1,125
General Grant 1890	Middle eastern California	4
Mount Rainier 1899	West central Washington	324
Crater Lake 1902	Southwestern Oregon	249
Wind Cave 1903	South Dakota	16
Platt 1904	Southern Oklahoma	1⅓
Sullys Hill 1904	North Dakota	1⅛
Mesa Verde 1906	Southwestern Colorado	77
Glacier 1910	Northwestern Montana	1,534
Rocky Mountain 1915	North middle Colorado	398
Hawaii 1916	Hawaii	118
Lassen Volcanic 1916	Northern California	124
Mount McKinley 1917	South central Alaska	2,200

Nevada Falls—Yosemite National Park, one of the loftiest waterfalls in the world.

enable motorists, horseriders and hikers to explore and study them intimately. It builds water and sanitary systems and it polices the parks with capable Rangers whose duties also include the protection of the wild animals from hunters and their feeding during winters of extraordinary snow.

By opening, developing and advertising these National Parks the Government is creating for the nation at large an asset of great value. Before the war citizens of the United States were spending $300,000,000 a year in going to Europe, of which $50,000,000 were spent in seeing the Swiss Alps alone. Besides keeping much of this at home, the Government contemplates that some day these scenes of the National Parks will draw many millions a year of Europe's money to these shores.

CHAPTER III.—PROTECTION AFFORDED THE BUSINESS MAN

(*a*) *By the Federal Trade Commission*

The Federal Trade Commission.

The Federal Trade Commission was created in September, 1915. It superseded the old Bureau of Corporations which was the nucleus of its organization.

The Commission is to the interstate business of the country what the Interstate Commerce Commission is to interstate common carriers and what the Federal Reserve Board is to banks. The Commission, therefore, has no power either over banks or railways.

Furthermore, the Commission is intended to be a supreme court for business, and as such its founders believe it will coordinate and firmly establish a national code of business ethics.

Its jurisdiction falls under:

(a) The Trade Commission Act by which it was founded.

(b) Certain sections of the Clayton Act.

(c) An Act to Promote Export Trade.

The work of the Commission is as follows:

(1) The Commission may act by direction as an agency for Congress and also for the President to investigate the abuses in commerce or trade and their relation to the public, as stated more specifically later on in this chapter.

For instance, in the recent gasoline investigation a resolution was passed in the Senate that the continually soaring prices of this industry should be investigated. The result showed that the alleged shortage of gasoline was incorrect and prices were lowered through the publicity given to the investigation and force of public opinion which followed thereon.

(2) To investigate on its own initiative interstate business or by reason of public complaint, when deemed necessary. The results of such investigation may, in the judgment of the Commission, be reported to Congress, with suggestions for legislation intending to correct any existing abuses found.

The Commission may be said to be the Government's representative of the business man, subjected to the wrongs of unfair competition by a competitor.

As such the Commission receives complaints from any manufacturer, wholesaler or retailer regardless of the volume of business done.

Before taking any legal steps the Commission investigates the points in question. If these are found to be groundless, it so informs the complainant and

no harmful publicity of any kind is attached to the accused.

Should, however, the complaint appear to be justified, the Commission, through its legal department, informs the accused of all the steps thus far taken, presents its evidence as to the truth of the accusation and suggests that their lawyers or representatives get together with the representatives of the Commission to correct the unfair business methods of competition that exist.

It should be stated that in the big majority of the cases the accused, when "found guilty" and thus approached informally by the Commission, conforms to the suggestions of the Commission and eliminates the unfair practises which have been employed by him.

However, if they refuse so to do, the Commission issues a formal complaint and for the first time implores publicity in the case.

Up to this time, all steps taken by the Commission have been confidential and of a purely friendly character. As stated, however, when once a complaint has been issued it is a matter of public record and is not only available to all the parties concerned but to the general public likewise, through the usual methods of publicity (the press, etc.). In the issuing of the initial complaint the Commission serves notice to the defendant that the charges must be answered in the regular legal manner.

The defendant is also informed that he will, on a certain date set, have a chance to appear before the Commission for the purpose of answering in detail the charges made against him. If the charges are refuted, the case is dismissed; if the charges, however, are confirmed, the Commission issues an order to the defendant to "cease and desist" the practise charged.

The authority of the United States courts stands behind this order and these courts are empowered to receive any appeal the defendant might wish to make.

(3) The Commission is empowered to collect and compile data from any corporation. The data may be used in various ways; for instance, for the formulation of uniform accounting methods or dissemination of more efficient selling methods to various trades, etc.

In this way the Commission is able to assist and advise any trade that may appeal to it for advice for efficient and less costly methods in the carrying on of its business.

Investigators of the Commission are sent out to the most important plants and houses of the particular industry and all possible information is obtained. The economists of the Commission and its legal department are put to work on the complete data, which are compiled and handed to the trade in

question by means of reports, letters and circulars, etc., as may seem most practicable.

(4) If, in the course of such investigation or any investigation of the Commission, the results suggest needed legislation, the Commission recommends such legislation to Congress; or if such an investigation uncovers illegalities, the facts are reported to the proper authorities for action.

(5) The Attorney General may apply to the Commission for the readjustment of the business of any corporation charged with the violation of the Anti-Trust Acts, in order that it may henceforth maintain its organization management and conduct of business without these laws being violated.

(6) The Commission from time to time investigates trade conditions in foreign countries and with foreign countries, where such trade may affect the foreign trade of the United States. It duly reports these investigations to Congress, with such recommendations as it may deem advisable.

(7) The Commission has jurisdiction regarding the question of "price discrimination." Thus, if a manufacturer or concern sold goods to one party at a certain price, it would be unlawful to discriminate in price to another party provided that the conditions of the transaction were equal.

(8) The Commission has jurisdiction also over the enforcement of the prohibition of rebates, where such rebates have the effect to lessen competition or

to create a monopoly in any particular line of commerce.

(9) The section of the law forbidding "tying contracts" is enforced by the Commission. This means that it is unlawful to make a contract for the sale of a certain article or line of goods with the proviso that the purchaser shall at the same time buy some other article or line of goods.

(10) The Commission enforces the clause of the law which maintains that no person at the same time shall be director in several corporations engaged in interstate or foreign commerce having a capital of more than one million dollars, should these in any sense be competitors of the same business.

The Commission enforces the law which forbids that one company should hold stocks of another company if this should lessen competition between the companies concerned or tend to create a monoply.

It cooperates with the various departments of the Government, supplying them, when necessary, information to assist them in their several jurisdictions. It should, however, be stated that any information given out by the Commission is in combined figures and facts, not revealing any data concerning particular firms, corporations or individuals.

(*b*) *By the Federal Reserve Board*

Federal Reserve Board.

The functions of the Federal Reserve Board concern a general supervision over the whole banking system in the United States, the Board being responsible to Congress and reporting annually to that body.

In a broad sense its duties are as follows:

(1) To appoint three out of the nine directors of every Federal Reserve Bank, also a minority of the directors of each Federal Reserve Bank.

(2) To require bonds of Federal Reserve Agents.

(3) To suspend or remove any officer or director of any Federal Reserve Bank, the cause of such removal to be forthwith communicated in writing by the Federal Reserve Board to the removed officer or director and to the said Bank.

(4) To pass upon applications for admittance to membership in the Federal Reserve System of State Banks and Trust Companies.

(5) To suspend for the violation of any of the provisions of this Act the operations of any Federal Reserve Bank, to take possession thereof, administer the same during the period of suspension and when deemed advisable to liquidate or reorganize such Bank.

(6) To determine or regulate the rates of discount to be charged by the Federal Reserve Banks for each class of paper, these rates to be fixed with

a view to accommodating commerce and business.

(7) To permit or on the affirmative vote of at least five members of the Reserve Board to require Federal Reserve Banks to rediscount the discounted paper of other Federal Reserve Banks at rates of interest to be fixed by the Board.

(8) To supervise and regulate, through the Bureau under the charge of the Comptroller of the Currency, the issue and retirement of Federal Reserve notes, and to prescribe the rules and regulations under which such notes may be delivered by the Comptroller to the Federal Reserve Agents applying for same.

(9) To examine the accounts, books and affairs of each Federal Reserve Bank and to demand such statements and reports as it may deem necessary.

(10) To require the writing off of doubtful or worthless assets upon the books and balance sheets of the Federal Reserve Banks.

(11) To act as a clearing house for all Federal Reserve Banks. In this capacity it manages the Reserve Banks "Gold Settlement Fund" of about $335,000,000 (figures of November 8, 1917) used for the transfer of funds between Reserve Banks on the one hand and between Reserve Banks and the Treasury on the other; also for the weekly settlement of balances due to the banks from each other. It also has charge of a fund of about $350,000,000 standing to the credit of the Federal Reserve

Agents, used for the transfer of funds between Federal Reserve Banks and Agents on the one hand, and between Federal Reserve Agents and the Treasury on the other; both funds are in the custody of the Treasurer of the United States.

(12) To add to the number of cities classified as reserve and central cities under existing laws in which National Banking Associations are subject to the reserve requirements set forth in this Act.

(13) To authorize the opening by the Reserve Banks of accounts in foreign countries, the appointment of correspondents and the establishment of agencies in such countries.

(14) To grant by special permit to National Banks applying therefor, when not in contravention of state or local law, the right to act as Trustee, Executor, Administrator or Registrar of stocks and local bonds under such rules and regulations as the said Bureau may prescribe.

(15) To issue regulations for the opening of National Banks in foreign countries or insular possessions of the United States.

(*c*) *By the Interstate Commerce Commission*

The work of the Interstate Commerce Commission can be divided as follows:

(1) The work for which it was originally authorized by law, viz., the regulating of all rates of charges

of interstate commerce for passengers and merchandise with reference to common carriers (and certain steamship lines connected with railway companies), to telegraph, telephone and cable companies (whether wire or wireless). With regard to these the Act requires that all rates and conditions of transportation shall be reasonable, just and non-discriminatory.

Interstate Commerce Commission.

In order that carriers may charge uniform rates to all parties without discrimination they are required to file their own rates with the Commission. Severe penalties are prescribed for failure to observe these filed rates.

(2) The Division of Correspondence and Claims has received and answered during the past year approximately 50,000 general inquiries.

It is one of the aims of the Commission to assist in obviating the necessity of formal complaints when there is any possibility of bringing about an amicable adjustment by correspondence. Thousands of complaints are satisfactorily settled by this expeditious and economical method. It has been found that many complaints can be disposed of by simply pointing out to the complainant the rights and obligations under the law.

Should, however, an amicable settlement not be found possible, a formal complaint must be filed, upon which testimony is taken before the Commis-

sion. It then decides whether or not the complainant is justified. If so, the carrier is informed to this effect and ordered to reduce the rate of charge and make a refund of any amount in question.

In such cases complaints are filed in Washington and investigation held in any part of the United States most convenient to all parties concerned, the attorneys of the Commission being sent to the place decided upon.

(3) The Commission prescribes the manner in which accounts of all railways and common carriers are to be kept. This Division was created to carry out the provision of the Act which empowered the Commission to prescribe uniform accounting systems to be adopted by the carriers subject to the Act and to employ examiners to inspect the accounts, records and memoranda of such carriers. For each of the several classes of carriers that are subject to the Act a uniform system of accounts has been prescribed. In this provision is made for the proper accounting of every dollar of the carriers' receipts and expenditures and for the classification of all amounts received or expended. Such uniformity in accounting, it is maintained, is a public necessity and of value not only to the Commission, but also to shippers, investors, bankers and others.

(4) Carriers are required to file with the Commission monthly and annual reports showing the earnings, disbursements and other figures respecting the

operations. This information has been placed in a Department of Statistics containing all data regarding the financing of carriers. Under this heading can be found the earnings of carriers, their net income, their gross income, expenditure, material transported per mile, etc. This information is of special interest in railroad finance.

(5) The Commission ascertains and reports the value of all the properties owned or used by every common carrier subject to the Act.

(6) The Commission is authorized to investigate all railway accidents which result in serious injuries to persons or property and to make reports thereon with suggestions for avoiding the same in future.

It is also charged with the enforcement of laws regarding the safety appliances on engines, cars and freight conveyances. In this regard it inspects the hours of service of certain employees in order that they may not work unreasonable hours and lessen danger of safety of passengers.

(7) The Commission regulates the movement, distribution and exchange of cars with a view to preventing a car shortage throughout the United States.

The Bureau has one of the best railway libraries in the world, pertaining to all kinds of railway operations, regulations, etc., in this country and abroad.

PART IV

THE WORKING MAN

CHAPTER I.—PURPOSE OF THE DEPARTMENT OF LABOR

On the 4th of March, 1913, Congress approved of the Act which created the Department of Labor. Its first section reads:

> "The purpose of the Department of Labor shall be to foster, promote and develop the welfare of the wage earners of the United States, to improve their working conditions and to advance their opportunities for profitable employment."

The Act shows no authority for the development of any special privileges for wage earners. It is, however, evident that Congress intended to look after their interests by means of an Executive Department especially devoted to them. There is also no indication that the Department was created only for such wage earners as associated together in labor unions. It was founded in the interests of all the workers of the United States whether organized or unorganized.

CHAPTER II.—EMPLOYMENT SERVICE

Department of Labor. The Employment Service of the United States grew out of the Division of Information of the Department of Labor, originally founded to give information to landing immigrants.

It has taken over the labor requirements of the country on the farms (see page 59), as well as in the factories, mines and workshops. The work of this Division was originally confined to small branches which have now grown until every state in the Union has a Labor Employment Zone with headquarters at some central place in each state and sub-branches through that state.

Under this system with its zone in each district it is possible under normal conditions to find a new position for a laborer within twenty-four hours and to immediately supply labor where needed.

The zones of the Employment Service at the present time are as follows:

Zone	Headquarters	Sub-branches
Maine	Portland	
New Hampshire		
Vermont		
Massachusetts	Boston	New Bedford
Rhode Island	Providence	
Connecticut	Hartford	Bridgeport
New York	New York	Buffalo
New Jersey	Newark	Jersey City
		Orange
Pennsylvania	Philadelphia	Pittsburgh
Delaware	Wilmington	
Maryland	Baltimore	
District of Columbia	Washington	
Virginia	Norfolk	
West Virginia		
North Carolina		
South Carolina	Charleston	
Georgia	Savannah	
Florida	Jacksonville	Miami
		Key West
		Pensacola
		Tampa
Alabama	Mobile	
Mississippi	Gulfport	
Louisiana	New Orleans	
Tennessee	Memphis	
Arkansas	Little Rock	
Ohio	Cleveland	
Kentucky		
Indiana	Indianapolis	
Illinois	Chicago	
Michigan	Detroit	Sault Ste. Marie
Wisconsin	Milwaukee	
Minnesota	Minneapolis	
North Dakota		
South Dakota		
Iowa	Des Moines	
Missouri		
(Eastern District)	St. Louis	
(Western District)	Kansas City	

Zone	Headquarters	Sub-branches
Nebraska	Omaha	Lincoln
Kansas		
Oklahoma		
Texas:		
(Southern District)	Galveston	Houston
		Brownsville
		Laredo
		Eagle Pass
		San Antonio
		San Angelo
(Western District)	El Paso	Del Rio
(Northern District)	Fort Worth	Big Spring
		Amarillo
New Mexico	Santa Fe	Albuquerque
		Tucumcari
		Deming
Colorado	Denver	
Utah	Salt Lake City	
Wyoming	Cheyenne	
Montana	Helena	
Idaho	Moscow	
Washington	Seattle	Spokane
		Walla Walla
		Tacoma
		Aberdeen
		Everett
		Bellingham
		North Yakima
		Friday Harbor
		Nocksack
		Lynden
		Custer
		Port Townsend
		Port Angeles
Oregon	Portland	Astoria
California:		
(Northern District)	San Francisco	Sacramento
		Fresno
		Eureka
		Monterey

Zone	Headquarters	Sub-branches
(Southern District)	Los Angeles	San Diego
		Santa Ana
		Santa Barbara
		San Luis Obispo
		Bakersfield
		San Bernardino
		Calexico
		Indio
Nevada	Reno	
Arizona	Phoenix	Tucson
		Douglas
		Naco
		Nogales
		Phoenix
		Yuma

It has been the policy of the Bureau to get employer and employee into personal touch with the Service, as direct contact between either of them and their Government is more satisfactory than intercourse through another person, the workingman feeling that his Government is taking a direct interest in him. In giving the following list of the various blank forms used by the Division it is possible to recognize the manner in which the problem is handled:

Application for Employment. To be used in applying for work by persons who cannot make application in person.

Application for Farm Hands. To be used by employers applying for help in agricultural work or kindred occupations.

Application for Laborers. To be used by employers in applying for laborers or men of other occupations except farm work.

Application for Domestics. To be used by employers in applying for domestic servants, male or female.

Application for Settlers. To be used by owners of land desiring settlers or tenants. (See page 160.)

Application File Card. To be used in registering applicants for employment who apply in person and who are directed to work, or for those whom there is reason to believe may be directed at an early date.

Identification Slip. To be fully filled out and handed to each applicant directed to employment.

Letter of Direction (*thick and thin*). To be used in notifying employer when applicants are directed to him for work. Form may be used for any number of men directed to the same employment or like work on the same day. Thin sheets for file and copy for Division at Washington.

Card Announcement of Arrival. To be forwarded with form Inf. 8 when applicants are directed. Fill in date of direction, address card to your own office. When returned note fact on your record and forward card to Chief of Division at Washington.

Transportation Circular. To accompany all letters requesting an advance of transportation, also forms Inf. 2 and 3 when forwarded to employers by mail.

Receipt for Advanced Transportation. To be signed by each employee who travels on advance of transportation, face to be stamped at top by transportation company and full accounting to be made of remittance; then file.

Copy of Receipt for Advanced Transportation. To be used for copies of employee's receipt; to be signed in duplicate by employee, one copy to be forwarded to employer and one copy to Chief of Division at Washington.

Brief of Active Opportunities. To be used to record active opportunities and all old opportunities which have been reopened; convenient and time saving method of quick reference to active opportunities.

Monthly Report of Applicants for Information. To be used to record all applicants for information concerning employment, by race and trade or calling, the latter regardless of the kind of work the applicant seeks or will accept.

Summary of Distribution. To be used in making monthly report of applicants directed to definite employment.

Identification Tag. To be properly filled out and placed on employees directed on advanced transportation where applicant cannot speak English.

Baggage Tag. To be properly filled out and placed on baggage of all applicants directed on advanced transportation.

CHAPTER III.—INFORMATION CONCERNING LABOR ISSUED BY THE BUREAU OF LABOR STATISTICS

Bureau of Labor Statistics.

The chief duty of the Bureau of Labor Statistics is to publish information concerning labor from every part of the world among the people of the United States; especially in its relation to capital, hours and earnings of laboring men and women and the means of promoting their material and social welfare.

The Bureau publishes, by means of bulletins or its *Monthly Review,* the union scale of wages and hours of labor in various industries; the conciliation and arbitration work of the Department of Labor and other agencies; the collective agreements in successful operation in well-known factories or industries; employment and unemployment in important industries, and the operations of Federal, state and municipal employment offices; the turnover and migration of labor and the efforts of employment managers to stabilize it; the employment of women and children, and protective legislation regarding them; vocational education; industrial accidents and accident prevention, and the importance of a uniform

method of reporting; occupational disease and its prevention; all phases of social insurance, including the publication of workmen's compensation laws; the cost of living, giving the actual sale prices, wholesale and retail, of a large number of commodities in representative markets throughout the country; the labor laws of various states and a study of their administration; the work of state labor Bureaus, workmen's compensation commissions, and minimum wage and arbitration boards; court decisions affecting labor; the proceedings of such conventions and conferences as have to do with labor; and many other subjects related to the work of the Department of which the Bureau forms a part.

The publication of chief popular interest is the *Monthly Review* whose initial number appeared in July, 1915. This shows from month to month the current work of the United States Department of Labor and other Government agencies dealing directly with labor matters.

The bulletins of the Bureau, as soon as published, are concisely summarized in the *Review* and statements each month show the employment and conciliation work done in the Department of Labor. Current statistics of immigration, unemployment, cost of living, and many other subjects are given. The *Monthly Review* keeps in touch with the work of the various states, with minimum wage commissions, factory and mine inspection offices, arbitration

boards and other permanent or temporary agencies for investigating and reporting upon questions of interest to labor. It also devotes space to the work of foreign official agencies and bureaus, many reports otherwise inaccessible being thus made available to the general public. Official reports both domestic and foreign are reviewed in this publication if they are important and relate to labor.

Any publications of the Bureau may be had without cost until the supply is exhausted, after which a nominal sum is charged to cover the actual expense of printing and paper.

CHAPTER IV.—MEDIATION IN DISPUTES

Mediation Service. Department of Labor.

The Secretary of Labor is empowered to mediate in labor disputes and at his discretion to appoint Commissioners of Conciliation, his authority coming from the section of the Organic Act of the Department reading:

> "The Secretary of Labor shall have power to act as mediator and to appoint commissioners of conciliation in labor disputes whenever in his judgment the interests of industrial peace may require it to be done."

Primarily the Department of Labor must conserve in industrial disputes the interests of the wage earners of the United States, such being its duty under the laws of its creation. However, the policy of the Department, though it executes its mediation and conciliation functions, as the governmental representative of wage-earning interests, is to do so without partisanship or prejudice, but with fairness to every interest concerned.

Many strikes and disputes of first magnitude which might have entailed serious loss to the people of the United States have been averted or adjusted during the year.

An instance in point is that of the central Pennsylvania bituminous coal fields where a strike that would have tied up the entire field was threatened. This involved upwards of 75,000 workers. As a result of the good offices of the Department, the dispute was satisfactorily adjusted.

In the Southeastern Railway controversy involving over 40,000 mechanics, electricians, car inspectors, etc., employed on the Southern Railway systems, the issues in dispute were settled amicably.

A stoppage of work in the coal fields of Alabama, in which 25,000 workers were employed, was also averted by the Department's efforts.

Scores of trade disputes are handled by the Department each month. The policy of the conciliators is to secure adjustments before a stoppage of work occurs with the consequent loss in production to the employers and in wages to the workers.

During the past fiscal year the Department has been requested to use its good offices in 378 strikes, trade disputes, lockouts and controversies in practically all branches of manufacturing, mining and construction work. It has been successful in settling 248 of these, 47 proved unadjustable, 42 were pending at the close of the year, and in the remainder the Commissioners of Conciliation found that the matters in dispute had either been arranged before their arrival, that the employees affected had secured work elsewhere, or that state or local officials

were making progress towards satisfactory adjustment. The number of workers affected directly in these cases was 473,739 and those indirectly affected 334,225.

Board of Mediation and Conciliation.

The Board of Mediation and Conciliation also assists in the settling of disputes. It was created by Act of Congress in July, 1913, and is an independent Government establishment not connected with any department.

The purpose for which the Board was established is to settle by mediation, conciliation and arbitration controversies concerning wages, hours of labor, or conditions of employment that may arise between common carriers engaged in interstate transportation and their employees engaged in train operations or train service.

Any cases where an interruption of traffic is imminent and fraught with serious danger to the public interests the Board may, if in its judgment such action seems desirable, proffer its services to the respective parties of the controversy.

In their work of mediation members of the Board visit all parts of the United States. Mediation of controversies arising in what is known in the railway world as southeastern territory, however, is by consent of the parties sometimes conducted at the offices of the Board in Washington.

When a controversy such as is mentioned above

arises the Board uses its best efforts by mediation and conciliation to bring about an agreement. Should its efforts prove unsuccessful the Board endeavors to induce the parties to submit their controversies to arbitration.

In the event of an agreement to arbitrate their differences the parties to the controversy select their respective arbitrators and the arbitrators thus selected endeavor to agree upon the remaining arbitrator or arbitrators to complete the Arbitration Board. If it fails in this, such remaining arbitrators are selected by the Board of Mediation. Necessary arrangements for conducting the arbitration are made by the Board of Mediation, which also pays all expenses of an arbitration, including quarters for holding the hearings, official reporters, etc. When practical, however, arbitrations are held in a Federal building without cost to the Board.

During the first year of its existence the Board amicably adjusted some twenty-eight controversies, involving directly some one hundred and twenty-five thousand railroad employees. This average has continued each year. A single controversy may be based on from one to fifty or sixty different questions involving from a few dozen to several thousand employees.

CHAPTER V.—INVESTIGATIONS FOR THE SAFETY AND HEALTH OF MINERS

Bureau of Mines. The primary work of the Bureau of Mines is to investigate the safety and health conditions in the mineral industries with a view to making recommendations for preventing fatalities and accidents.

The Bureau investigates the causes of accidents, publishing the result of the investigation with recommendations. In connection herewith the Bureau is issuing an official list of permissible explosives, lamps and motors which have passed the Bureau's official safety test for the benefit of miners and mine owners.

The Bureau has no right to inspect mines, these being under the jurisdiction of the police in the state where the mines are situated. The Federal Government can only make recommendations and ask for the cooperation of the mine owners and miners with a view to ascertaining how conditions can be improved.

In this respect the Bureau is prepared to make a thorough investigation of safety conditions at the request of any particular mine. A confidential report is then sent to the owners concerning the ex-

act conditions that exist. In almost every case it is found that the owners are only too ready to get the opinion of disinterested experts.

The Bureau has rescue cars in every mining district of the country. These are equipped with crews, experts in rescue work and first aid and they are called in whenever an accident occurs. While not occupied in helping the injured in case of disaster, they act as teachers of first aid and rescue work in the mining centers. During the past year they have been teaching the wives and daughter of miners first aid, so that gradually the whole population of the mining districts will be able to assist when needed. Each of these cars has a mining engineer, who also gives lectures on sanitation. Big improvements in the houses of the district have been the result, the conditions under which the miners live generally being somewhat primitive. However, the work that is being done by the Bureau of Mines in cooperation with the Public Health Service in teaching them to take every precaution to prevent epidemics has brought about a great improvement.

Public Health Service.

The officials of the Bureau of Mines, in cooperation with the Public Health Service, are organizing whole communities in a fight against miners' consumption, which is so tragically prevalent in a few mining districts. It was found that 60 per cent. of the miners in one metal mining industry showed injury to the lungs

Bureau of Mines Rescue Crew. Stretcher Drill.

Bureau of Mines Rescue Corps entering mine following disaster.

due to the inhalation of irritating dust, 14 per cent. being also tubercular.

A similar campaign is being waged against "hookworm," which is also prevalent in some of the mining districts.

Bureau of Mines.

Publications are issued by the Bureau of Mines on the subject of "Safety." These publications not only apply to miners, but to men engaged in the various industries that are auxiliary to mining. For instance, the Bureau has published a number of reports relating to the safety of workers in steel mills, blast furnaces, etc., and has issued general rules of safety and sanitation that are applicable to all industrial workers. A pamphlet containing special rules on "first aid to the injured" has also been published for the benefit of the miners and their wives.

CHAPTER VI.—INVESTIGATIONS RELATIVE TO OCCUPATIONAL DISEASES AND INDUSTRIAL HYGIENE

Public Health Service.

The Public Health Service makes investigations relative to occupational diseases and industrial hygiene. Investigations relative to this work are to a great extent of a scientific nature, research work being carried on in the Pittsburgh Industrial Laboratory.

The result of these investigations and experiments, with recommendations, are printed in bulletins given to the owners of industrial concerns or those responsible, who in most cases are ready to act on the suggestions for the benefit of workers made therein.

The Service makes surveys, visiting the stores, factories, workshops, etc., to investigate sanitary conditions, ventilation, illumination, hours of work, etc., and improvements drawn up by the Service.

CHAPTER VII.—COMMUNITY ORGANIZATION

A Division for "Community Organization" was established under the Bureau of Education on the 1st of January, 1916, to furnish expert assistance in developing the use of public school houses as community centers—neighborhood headquarters of civic, cultural, recreational and economic cooperation of adults and older youth.

Bureau of Education.

The work of the division may be said to fall under the following headings:

The Promotion of General Interest. The members of the division since its foundation have presented its principles before 162 general audiences in as many communities and before 26 conferences, assemblies of educational and social workers. In addition to this they have participated in forming two auxiliary private associations to supplement its work—the National Community Center Association, whose aim is to help in general promotion, and the Community Organization Board, whose function is to furnish temporary financial aid for demonstration where the economy of public appropriation for community center development is not yet appreciated.

Recommendation of Necessary Legislation. At

the request of officials, individuals and associations in various states, a summary of existing legislation relating to the wider use of public school property was made, and a model bill drawn to make provision in consistent fashion for community center development. This, with an explanatory brief, was sent to Governors, State Superintendents of public instruction and chairmen of Senate and House committees on education of the several states in which legislative sessions occurred within the year. Thirty states have thus far enacted laws looking to the increased community use of the public school equipment.

Direct Aid in Community Center Development. In order to furnish a national demonstration of the possibilities of community center development, the division has cooperated with local agencies in systematically inaugurating this development in the District of Columbia. Through its cooperation a beginning has been made of the use of the public school house as the polling place, the community forum, and the recreation center of each local neighborhood, and the office of general secretary of community centers has been established to coordinate the work throughout the District. At present the division is aiding in the experimental establishment of community trading with the school house as headquarters, on the plan worked out successfully in connection with the United States public

schools in Alaska. Another interesting direct service of the division has been its founding a National Motion Picture Film Exchange, collecting the films available in the various departments and furnishing them for free use in community centers.

CHAPTER VIII.—SUPERVISION OF SEAMEN'S CONTRACTS

Department of Commerce.

The Bureau of Navigation of the Chamber of Commerce supervises the labor contracts entered into by the seamen on merchant vessels engaging in foreign trade. This supervision is to prevent frauds upon seamen, to prevent their being left stranded in foreign ports and to enable them to know in advance just what work they have agreed to perform, the course and duration of the voyage, the fare they are to receive on board and their pay. These contracts are made in writing on printed government forms and are signed by a Shipping Commissioner or Collector of Customs as a representative of the Government. When the contract has been performed and the voyage ended the seamen are paid off and discharged before the Shipping Commissioner.

PART V

THE IMMIGRANT

CHAPTER I.—CARE DURING POSSIBLE DETENTION AT IMMIGRATION STATIONS

Bureau of Immigration.

The Bureau of Immigration of the Department of Labor is concerned with all matters relating to the execution of the Immigration Laws.

One of its chief duties is the care of the immigrants seeking admission to the United States. The arriving immigrants are examined and those temporarily detained are cared for at a series of large and well-equipped Immigrant Stations located at the ports of entry on the seacoast and places of ingress on the land boundaries.

The largest Immigration Station is at the Port of New York and is situated upon Ellis Island. The term "Ellis Island" comprehends a group of thirty-odd buildings, of the safest and most sanitary type which engineers have been able to develop. As far as possible every reasonable comfort and convenience is provided for these temporary wards of the Government, large and well-aired detention rooms being set aside for them. An up-to-date hospital with every modern equipment is available for those who are sick. For children or adults there is also a

contagious disease hospital, with a special staff of officers from the Public Health Service detailed to this Immigration Station. Those suffering from temporary curable illnesses, which, however, forbid their entry into the United States, are treated or operated at the Immigration Station Hospital.

Similar stations on a smaller scale are maintained at Philadelphia, New Orleans, Galveston, San Francisco, Seattle and Honolulu, and new stations are in prepartion at the ports of Boston and Baltimore.

The handling of normal immigration before the European war involved the welfare of approximately 2,000,000 persons a year.

The new Immigration Law, which became effective on May 1, 1917, makes transportation companies largely responsible for the character and fitness of intending immigrants. By a system of administrative fines the importation of persons morally dangerous, mentally disqualified, or having contagious diseases is prohibited. This is a law of vast importance considering that up to the present time many European ticket agencies were merely interested in selling transportation to the greatest number of immigrants in this country without any inquiry as to whether these persons would, or would not, be allowed to land. Under this new law immigrants refused landing are refunded the cost of their passage. If a bond must be given while wait-

ing for deportation, the alien may deposit cash at the post-office and draw interest thereon instead of being compelled to pay heavy premiums for surety bonds.

CHAPTER II.—HELPING THE IMMIGRANT GET EMPLOYMENT

Division of Information.

The Division of Information of the Department of Labor is at the disposal of the immigrant in looking for employment. The Act under which the Division of Information was founded was worded to the effect that it was to gather information from all available sources concerning conditions in the labor field, publish same in various languages and distribute the information to the immigrants at the various landing places, if requested so to do.

However, information might also be given to "others" who might ask for it, which gave the Division the right to deal with all kinds of labor, and this formed the basis of the general employment service. (See page 268.)

The beginning of the work was to gather information concerning labor and give it to those landing in the United States. It was found, however, that the bewildered immigrant in his unaccustomed new surroundings had but little use for these pamphlets of information thrust into his hand. The establishment of branch offices of the service at each landing

port was then agreed upon as being infinitely more practical. To these branch offices the immigrants were told they might come for advice and help after their release from the Immigration Stations. Instead of leaflets relating to information on labor gathered by the Department, the immigrants were simply given leaflets with an address to which they might apply in case of any difficulty presenting itself to them. At the Government employment offices which are in touch with labor conditions all over the country (see page 269), the immigrant is given advice and assisted in obtaining suitable employment. Interpreters are at his disposal and a complete system has been organized to insure the immigrant reaching his place of employment, should this be in the city where he finds himself, or out of that city, no matter what the distance may be.

CHAPTER III.—TEACHING IMMIGRANTS CITIZENSHIP AND ENGLISH

Bureau of Naturalization.

A Naturalization Bureau was created under the Act establishing a Department of Labor. In the first instance, its duties are to supervise the enforcement of the Naturalization Laws. These, broadly speaking, admit to American citizenship aliens under the following conditions:

(a) A five years' continuous residence in the United States, when holding a declaration of intention to become a citizen at that time, which is dated two years back.

(b) A good moral character.

(c) Ability to write, and also to speak English.

In its administration of the Naturalization Laws the Bureau cooperates with the public school authorities throughout the United States for the purpose of bringing immigrants at the earliest possible moment into contact with the Americanizing influences of the public school system and teaching them the principles of citizenship.

The Bureau, however, is interested only in those aliens who have declared their intentions to become

citizens of the United States and who have of their own free will taken steps towards this goal.

The first effort made to bring the alien into contact with the public schools is to send him a personal letter, and if he has a wife to her also, reading as follows:

> "Dear Sir:
>
> "You have taken steps to become a citizen of the United States; therefore, the United States Government is especially interested in your welfare and the United States Bureau of Naturalization is sending this letter to you, as it desires to show you how you can become an American citizen. It also wants to help you get a better position that pays you more money for your work. In order to help you to learn of the many advantages which will come to you from being a citizen of the United States, and to help you better yourself, it has sent your name to the public schools in your city, and the superintendent of these schools has promised to teach you the things which you should know to help you get a better position. If you will go to the public-school building nearest where you live, the teacher will tell you what nights you can go to school and the best school for you to go to. You will not be put in a class with boys and girls, but with grown people. The teaching which you will receive in the school will help you get a better job and also make you able to pass the examination in court when you come to get your citizen's papers.

"You should call at the schoolhouse as soon as you receive this letter, so that you may start to learn and be able to get a better job as soon as possible.

"Very truly yours,

"Commissioner of Naturalization."

and,

"Dear Madam:

"Your husband has taken steps to become a citizen of the United States; therefore the United States Government is especially interested in your welfare and the United States Bureau of Naturalization is sending you this letter, as you will also become an American citizen when your husband gets his full citizenship. In order that you may learn of the many advantages which will come to you from being a citizen of the United States, the Bureau of Naturalization has sent your name and your husband's name to the public schools in your city, and the superintendent of these schools has promised to teach you the things which you should know to help you in these matters.

"If you will go to the public-school building nearest where you live, the teacher will tell you what nights you can go to school and the best school for you to attend. You will not be put in a class with boys and girls, but with grown people. The teaching which you will receive in the school will make you able to have an American home, to help your husband in becoming an American citizen and your family to live as Americans live.

"You and your husband should call at the schoolhouse at once, so that you may both start to learn these things as soon as possible.

"Very truly yours,

"Commissioner of Naturalization."

These classes were originally held for the benefit of immigrants who had applied for naturalization but whose application had been refused.

The names are obtained from the 2,350 courts all over the United States where aliens wishing to become naturalized citizens may register, a copy of each of these declarations being sent through the Naturalization Bureau in Washington, giving the names of aliens, age, etc., and all details as to their families.

The Bureau also sends each month to the local school authorities a card which gives the name, age, residence, occupation and nationality of each declarant for citizenship within the jurisdiction of that school during that month. On this card the date of the declaration of intention is written, and on the same card are blanks prepared for filling out by the school authorities, the cards to be forwarded to the Bureau after they are filled out. These reports show the attendance of the alien at school, his degree of literacy in his native tongue and English and the extent of his previous education. When the reports have been tabulated by the Bureau they are returned to the respective schools. In this connection the Bu-

reau has drawn up "An Outline Course in Citizenship," to be used in the public schools for the instruction of the foreign and native born candidates for adult citizenship responsibilities.

The influence of this cooperation between the Bureau on the part of the Federal Government and the public schools, representing the state governments, has been found in legislative enactments in various states. Such local organizations are working with the Bureau by going into the homes of the candidate for citizenship to aid in his education and make it possible to give the immigrant an idea of the American home. Up to the present 1,754 towns and cities are cooperating with the Bureau of Naturalization through the public schools.

Bureau of Education. The Bureau of Education is also interested in the Americanization of the Immigrant.

The work done for the immigrant by the Bureau of Education in cooperation with private individuals is for the purpose of:

(a) Promoting national, state and city interest toward the Americanization and education of the immigrant.

(b) Acting as a clearing house of information of all phases of the Americanization of the immigrant through education.

(c) Assisting and facilitating organization and

administration of public evening schools all over the country.

(d) Facilitating instruction by providing all authorities and agencies interested with standard material, i.e. courses, text-books and methods.

(e) Extending educational facilities for Americanization in factories and private organizations and public institutions and into the homes of the immigrants.

(f) Mobilizing all the forces interested, including industrial concerns, private organizations and patriotic individuals in the movement of the Americanization of the immigrants.

In the year 1914 investigations were made concerning facilities for the education of immigrants by the Bureau of Education.

The next step was the distribution of more than one hundred and fifty thousand "America First" posters, printed in English and seven foreign languages, inviting foreigners to learn English by attending night schools. They were requested to write the Bureau of Education if there was no night school for them in their city or town. This poster was sent to all cities and county superintendents of schools, to the principal post-office, industrial establishments, educational periodicals and magazines and to organizations and individuals interested in the subject. This distribution of posters brought large numbers of letters from all kinds of individuals, in-

dustrial plants and institutions asking for suggestions in conducting classes, for text-books, etc., as well as petitions signed by large numbers of foreigners for the establishment of evening school facilities, which were passed on to the proper school authorities with suggestions and advice.

A bulletin entitled "Standards and Methods in the Education of Immigrants" was drawn up and issued for the benefit of all those concerned with this subject.

As in the case of all divisions of the Bureau of Education, this division is used as a clearing house of information concerning methods of educating the immigrant used all over the country.

A large quantity of printed matter, charts, diagrams, photographs, in regard to the inability of the foreigner to speak English, total illiteracy, school attendance and factory classes is in the possession of the Bureau of Education for display. A set of lantern slides has also been prepared showing letters from immigrants, diagrams, statistics, etc. The following is a list of some of the more important publications pertaining to immigrant education that are available at the Bureau:

"Public Facilities for Educating the Alien"
"How to Advertise Night Schools"
"How Chambers of Commerce Can Cooperate"
"What Women's Organizations Can Do"

"How to Organize an Evening School for Foreigners"
"How Industries Can Cooperate"
"How Libraries Can Cooperate"
"How Foreign-Language Newspapers Can Cooperate"
"What Some Members of the Committee of One Hundred Have Done"
"How Labor Unions Can Cooperate"
"How Sectarian Organizations Can Cooperate"
"How Patriotic Societies Can Cooperate"
"How Young Women's Christian Associations Can Cooperate"
"A Call to National Service"
"Recent Activities of the Division of Immigrant Education"
"Women's Work for Women's Clubs"
"Course in Elementary Civics for Immigrants"

A bulletin has been prepared giving a complete bibliography of all texts and courses now being used in teaching English to immigrants.

This Division cooperates with organizations and institutions interested in its work by formulating programs and sending printed matter by correspondence and personal interviews.

Surveys are made by the officers of the Division in cities and towns, at the request of those in charge, to lay a plan of what is needed in that particular vicinity for the education of the foreign element.

The question of school facilities in industrial plants has been investigated generally and suggestions formulated. The plants are responding to these plans in a manner that is satisfactory and classes are being established all over the country.

On request the Bureau will send to industrial plants employing large numbers of foreigners a representative to make a survey of the conditions of the problems confronting the employer and employee. The proper educational facilities to meet the needs of each industrial concern are recommended and the local school authorities are asked to cooperate in every possible way.

The amount of interest stirred up by the work for immigrants was so great that the Bureau of Education found itself without either sufficient funds or staff to cope with the situation. It therefore appointed the "National Committee of One Hundred" to assist in this work. The members of this committee were selected from divers activities of national life and represent the principal agencies, public and private, engaged in dealing with the education and welfare of the immigrant and all sections of the country where the alien population is large.

The functions of the National Committee of One Hundred are to sit with the Commissioner of Education as an advisory council in matters pertaining to Americanization through education, to assist in conducting "America First" campaigns and to pro-

mote the development of co-ordinated national, state and city policies in Americanization.

Each year, therefore, the Bureau cooperates in the conducting of a nationwide "America First" campaign. This is directed toward stimulating the English language and a genuine allegiance to the United States. The campaign begins about September 1st, just prior to the opening of night schools, and lasts about six months. The campaign owed its name to the "America First" posters originally published for the Americanization of aliens. It is made effective through publicity regarding night school facilities in foreign languages and is a specialized feature of the broader work of the Bureau, enlisting the specific activities of thousands of individuals and organized bodies.

A sub-committee embracing all matters pertaining to legislation was appointed. This suggests bills for Federal aid, embracing Bureau appropriations and state Americanization enactments.

The Committee of One Hundred, through its co-operative agencies,—namely, industrial establishments and chambers of commerce, civic institutions, patriotic societies, etc.,—looks into the question of the life of the immigrant with a view to seeking methods for the improvement of his social surroundings, his religious and spiritual welfare and the sanitary conditions of his home. In connection therewith the Division advises employers of large num-

bers of foreign laborers, how to reduce their labor turnover, accidents, etc., by the improvement of the above conditions, and by teaching English, which also greatly reduces industrial difficulties through the fact that the workman is able to make himself understood in discussions with his foreman.

PART VI

THE NEGRO

CHAPTER I.—STATISTICS AND DETAILED REPORT CONCERNING THE EDUCATION OF THE NEGRO IN ALL PARTS OF THE UNITED STATES

Bureau of Education. The Bureau of Education has this year computed what is perhaps the most constructive piece of work ever undertaken for the benefit of the negro race.

To bring aid to the problem of educating 10,000,000 negroes required that actual conditions be understood. Practically no statistics were available. It was therefore necessary to gather exact data before suggestions for handling this question could be made. After three years of first-hand investigation, involving personal visits to over 800 schools, the Bureau of Education was able to present facts which transferred the problem of negro education from one based on "guesswork" to one of science.

The report is in two volumes, abundantly illustrated with pictures of school activities and charts.

The first volume contains general discussions of the various phases of negro education. The economic, industrial and social conditions of the negro

are presented and discussed as a measure of the educational needs and the extent to which they have to be met. The historical background of the education of the negro is carefully presented in order that there may be no misunderstanding of the lessons that have gone before. The work of the denominations, boards and foundations and other agencies interested in the negro is described in detail. Complete lists of the schools visited are given, with the necessary data as to teachers, attendance and financial support.

The second volume contains individual description of all the private and higher schools for negroes, grouped geographically and in such a way that the schools can be judged in direct relation to the task imposed upon them by community demands. For each state in which the negro forms a considerable part of the population, detailed information is provided, and the state's provision for white and colored children is critically analyzed. Each state is treated on its merits: where it endeavors to make adequate provision for the education of the colored people within its borders, the facts are so recorded; where it is a question of unfairness and neglect, the facts are likewise presented. For each state, on the basis of the recorded findings, definite recommendations are made and a program of work on behalf of colored schools outlined. Similarly for each school: the individual school sketch, ranging in length from

a few lines to several pages, according to the size or importance of the school, is regularly accompanied by a statement of recommendations for the improvement of the conditions as revealed.

One of the most difficult problems in negro education has been the private school with its representatives begging for funds wherever well disposed white people could be found to listen. The Bureau of Education has been constantly asked for reliable information regarding these schools, as to their honesty, class of work, etc., without being able to give reliable information. This is now made possible by the Bureau's report.

The Bureau's study has shown that a great mass of schools are neither frauds nor high-class universities, but struggling institutions needing aid and counsel in their gigantic task of introducing to civilization a race of 10,000,000 but 50 years from slavery. Such aid and counsel the Bureau of Education is now able to give.

The need for agricultural and industrial training for the negro is clearly shown, but the report finds that the negro requires, as perhaps no other part of our population, the wise leadership obtained from college and professional training. The Bureau is, therefore, urging upon all schools that gardening be introduced, and that trade and industrial training, especially in agriculture, be provided in increasing

measure; but that professional training of the highest type also be insisted upon, that the race may have "medical schools that will prepare health leaders for the race; law schools that will train men whose ideas for their race are above those now engaged in the practise of law; theological institutions that will supply wise and well-trained leaders for a race whose emotional nature demands the highest type of spiritual guidance."

Above all, the Bureau finds, the negro needs more and better education in the fundamentals; better trained teachers, longer school terms, more adequate schoolhouses and grounds, and, in general, financial provision for colored public schools that is more nearly in accord with the money the colored citizens pay, directly and indirectly, into the public treasury, and the importance of his children and his children's children to the welfare of the state and of the nation.

It is to this task of bettering all the educational facilities for negroes that the Bureau of Education is at present directing its energies. The spirit behind the Bureau's work for colored schools is best read in the following words from the report on Negro Education:

> "Never was greater opportunity for service offered to any nation than that presented by the need of the American negro for an education that will fit him to undertake the respon-

Picture of the Bureau of Education showing colored youths learning to master germs that menance the health of their race.

Two colored children receiving instruction in the Household Arts.

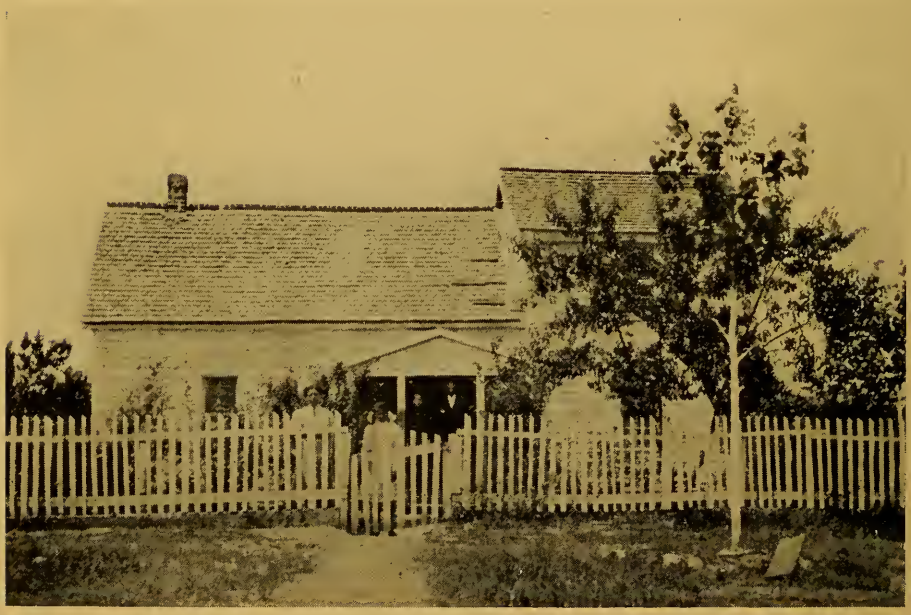
sibilities of life in the twentieth century. Never was there a more searching test of democratic ideals than the present necessity of a wise adjustment of the hopes and aspirations of 10,000,000 black people and the standards and principles of the 90,000,000 white people of the United States.

"Democracy's plan for the solution of the race problem in the Southland is not primarily in the philanthropies and wisdom of Northern people; nor is it in the desires and struggles of the colored people; nor yet in the first-hand knowledge and daily contacts of the Southern white people. Democracy's plan is in the combination of the best thought and the deepest sympathy and the most abiding faith of these three groups working with mutual faith in one another."

Evidence of the constructive result of these studies is shown in the changes which a number of schools have already made as a result of the suggestions of the Bureau of Education. Some of the schools have modified their courses of study to suit their incomes and the needs of the pupils, others have installed good systems of records and cost accounting. Plans have been adopted by a number of schools to emphasize cleanliness and order in the dormitories, with a view to increasing the pupils' appreciation of these qualities in their home life. Many institutions have for the first time understood the importance of school gardening, trained teach-

ers, and well considered plans for the buildings and grounds; and, in general, the colored schools show improvements consummated in a few months that would undoubtedly have not been possible in years.

A typical negro house.



What a coat of paint under the direction of the Demonstration Agent will do.

CHAPTER II.—ASSISTANCE GIVEN TO THE NEGRO FARMER

States Relations Service.

Almost from the very beginning of the demonstration work much attention has been given to the negro farmer who has always had access to all the services of the Department of Agriculture. Quite a number of negro demonstrators and cooperators were listed with white agents, especially in the thickly settled negro districts. Frequently when white demonstrators were named the actual instruction given on their farms was to negro tenants. Sometimes all of the tenants on the farm were assembled for instruction when the agent visited this demonstrator. It has been the policy of those in charge of the demonstration work in the South to put on negro agents in certain localities where the negro population predominated. As early as 1911 there were regularly organized seven states in the South with twenty-three agents for negro work, which number has now been considerably increased.

It is a conservative estimate that twenty-five per cent. of all the demonstration work in territories where there is a large negro population is spent in

giving direct assistance to the negro farmers. The results of this have been very striking, as the negro farmer and his family seem to be particularly susceptible to the system of instruction used in the demonstration work. Whole negro communities have been reached by the work of the agent, as is regularly observed by the improved condition of the farm and the farm buildings and live stock and the general appearance of the whole family.

Clubs among the negro children have been organized for about three years. These clubs are called Farm Makers' Clubs for the boys, and Home Makers' Clubs for the girls. The unit of acreage for these Clubs is the same as for the whites, only one acre. The girls are encouraged to grow 1-10 acre of tomatoes and other garden vegetables, which they are taught how to can and preserve. It is suggested that the boys plant ½ acre in corn, ¼ acre in potatoes and ¼ acre in peanuts, as these are three excellent food crops. In a number of states special negro agents have been detailed to do this work and good results are being secured.

In the case of the girls the main effort of the agent was directed towards the production and canning of fruit and vegetables and the introduction of simple home conveniences such as the screening of windows, painting and whitewashing of fences and similar household devices.

CHAPTER III.—HOME ECONOMICS FOR THE NEGRO WOMAN

Bureau of Education.

The Division of Home Economics of the Bureau of Education from time to time has made investigations in the homes of the colored people of the Southern states to find out existing conditions and what should be done by instructors to improve them.

During the year 1917 the Division held a course in institutional management during the summer schools at Hampton. The class was made up of matrons who had charge of the dormitories and boarding clubs in private or public colored schools of the South. Representatives from ten states were present in the class, and the schools from which the members came ranged in size from the small boarding school with 15 resident pupils to schools caring for 250 boarding students.

The lessons included in the course for the daily two-hour conferences that were held for four weeks were as follows:

"The relation of home economics to food questions in dormitories"; "What constitutes a well chosen ration: quality, quantity and variety"; "Cost

of feeding: food service, fuel, overhead expense"; "The problems of marketing: method of selection, wholesale figures, contracts"; "The problem of storage"; "Kitchen equipment: labor-saving devices"; "Sanitation in the Kitchen. Control of insect pests"; "Sanitation in the Kitchen. Disposal of garbage"; "Table equipment and service. Table etiquette"; "Equipment of rooms"; "Sanitation of dwelling and surroundings. Disinfectants"; "Care of halls, parlors, bathrooms, etc."; "Laundry management, institutional and personal"; "Kitchen gardens: seasonable vegetables, flowers for table decoration"; "Working schedules"; "Accounting and keeping of records"; "Cooperation between matron and general teaching force"; "Discipline."

This Division last year issued circulars giving outlines in homemaking to the supervisors of rural education in the Southern schools for the benefit of the colored teachers.

A feature of the work for colored women in the South has been the organizing of colleges in connection with schools for their practical instruction.

CHAPTER IV.—SCHOOL AND HOME GARDENING IN CITIES FOR NEGRO CHILDREN

Bureau of Education. The Division of School and Home Gardening of the Bureau of Education (see page 371) as far as possible does the same work for the white as for the negro children.

Special emphasis is laid on the fact that the plans would do much to solve the problem of the idle negro. A large part of the negroes in the Southern states live on the outskirts of cities and small towns. Their homes are frequently on large lots and surrounded with vacant lots covered with weeds and rubbish. During the vacation months the negro children roam idly on the streets, falling into mischief. Under proper direction of the school authorities they would make enough to support themselves on these lots and incidentally these negro quarters would be changed from places of ugliness to sites of beauty.

PART VII

THE WOMAN IN HER HOME

CHAPTER I.—INVESTIGATIONS MADE AND ADVICE GIVEN CONCERNING THE PRACTICAL PROBLEMS OF THE HOME

States Relations Service.

The Office of Home Economics is the only office where the home is recognized in its entirety. Although many of the other activities of the Department of Agriculture and other Departments affect the home the work of this office is organized primarily to help the housewife.

The investigations of this office form the basis of the extension work being carried on among the women and girls of the farmers' homes. (See page 131.)

The function of the Office of Home Economics is to study and investigate:

(a) Food products, their preparation and their uses from every standpoint.

(b) Clothing, household textiles and other household supplies with regard to their economy and usefulness.

(c) Household activities, methods of performing same and means of reducing the labor connected therewith.

The result of such investigation is to be spread

to the public through cooperation with the other offices and bureaus of the Department and in other ways. Special research methods and systematic study of a technical and practical nature is given to the above subjects by the Office of Home Economics. Some of the technical studies carried on involve the use of a Respiration Calorimeter, which is used in the studies of household tasks in order to determine how these should be performed without undue waste of time and strength, it being possible by the use of the calorimeter to find the exact energy expended during the performance of specific tasks.

Special studies have also been made in rural homes of the time actually taken for the performance of household tasks, with a view to testing the value of different household habits, concerning which experiments have been made in the laboratories of the office.

The practical experiments of the Office of Home Economics include studies of food and its preparation, the combination of foods to form rational and well-balanced meals for both large and small households, as well as ways of utilizing food to the best and most economical advantage. The digestibility of food products of various kinds also receive consideration.

The results of the activities of the office are issued in forms of publications which may be divided into farmers' bulletins, which are pamphlets written in

popular form and illustrated, treating of all practical questions of home life, practical reports and professional papers for the benefit of teachers of home economics, leaflets and circulars issued to draw attention to points of special importance.

By personal contact and through correspondence with housekeepers and teachers the office gathers very important information, suggestions for problems, etc.

All inquiries from housekeepers are given courteous consideration from the office, whether it be possible to answer their queries or not. Since the 20 years this office has been established its work has increased in leaps and bounds, nearly 20,000,000 copies of bulletins having been issued.

To give an idea of the ground covered by the office and its practical relation to every-day life a few specific instances of the large number of publications issued must be given.

"Bread and Breadmaking in the home" describes in simple terms the general principle on which bread making is based and suggests the easiest kind of method for making yeast-raised wheat bread in the ordinary household. It also indicates how the standard recipe may be modified to make different types of yeast-raised bread, and gives a few other recipes for bread made from other cereals than wheat.

"How to select foods," in a series of three pamphlets, makes suggestions for obtaining the best value

at a given price. This series tells very simply what the body needs to obtain from its food for building its tissues, keeping it in good working order and providing it with fuel or energy for its muscular work. It shows in a general way how the different food materials meet these needs and groups them according to their uses in the body. It suggests that by remembering these groups and having them all suitably represented in the daily diet, the housekeeper can easily plan attractive meals to meet the needs of her family without a waste of money or material.

"Food for young children" deals with simple, clean, wholesome food of the right kind fed to children in proper quantities and combinations. The pamphlet states the principles that should govern the choice of food for children between 3 and 6 years of age, and makes specific suggestions for planning meals.

"School Lunches" tells what school children should be given to eat at noon and what foods are best for the school lunch.

"The farm kitchen as a work shop." This discusses in a general way such subjects as the relation of the kitchen to other parts of the house, the size of the kitchen, the finishing of the floors, walls and ceiling, lighting, ventilation and heating, porches and screens, permanent equipment of the kitchen, the kitchen as a laundry. Particular attention is

given to the arrangement of the kitchen stove, cooking table and other kitchen equipment so that the journeys more frequently made in doing the kitchen work are short. The importance of adequate equipment is pointed out and suggestions made for labor-saving equipment and expedience.

"Preparation of vegetables for table" gives various recipes for the cooking of vegetables.

"Removal of stains from clothing and other textiles" gives a series of practical directions for the housewife.

The office has issued many pamphlets with practical and detailed directions for cooking and preparing for the table cheese, milk, meats, fruits and vegetables, and the canning of some of these foods.

"Homemade fireless cookers and their uses" is a pamphlet showing the simple preparation of a homemade fireless cooker. This is a device for keeping foods so hot after they have been taken from the stove that the process of cooking will be continued and completed.

It tells that a fireless cooker is best adapted to the preparation of dishes requiring long, slow cooking, such as breakfast cereals, soups, meats, vegetables and some puddings. Besides the bulletins and pamphlets, the Office of Home Economics has issued a series of food charts, showing the composition of foods. These food charts stand in the same relation

to the solving of food problems as a map does in geography.

It is interesting to know that last year there were issued 2,345,715 farmers' bulletins to the public.

Bureau of Fisheries.

The Bureau of Fisheries has issued a number of economical circulars giving brief account of certain fishes and their food values, containing each a number of recipes for cooking them adapted to various incomes, which are of great use to the housewife.

The failure of the meat supply to keep pace with the demands and the consequent considerable rise in meat prices have called attention to the necessity for finding other food supplies of essentially similar character. The most important of these immediately available, and which exist "already grown" as it were, is fish. (See page 226.) The market for the standard variety of fishes for several years has been in proportion to the supply, but there are caught large quantities of fish which are not known to the public and are therefore rarely eaten. These fish constitute a supply available largely without additional effort other than that occasioned in packing and transportation, and the Bureau of Fisheries has been waging a campaign to secure the utilization of these wasted products of the sea and fresh waters.

The Bureau of Entomology makes extensive investigations concerning household pests such as

Bureau of Entomology. bugs, roaches, flies, mosquitoes, etc., and issues bulletins for the benefit of the housewife determining the best way of getting rid of these.

For the housekeeper the Bureau of Mines has issued a pamphlet on "Saving fuel in heating a **Bureau of Mines.** house," which contains fundamental instructions to every householder in the country who operates a furnace or a fire of any character. The use of various kinds of fuel in different types of furnaces is also discussed.

The Bureau has issued safety rules on the handling of gasoline of value to every person operating a gasoline stove, and to automobile holders.

The Bureau of Standards (see page 194) has issued a series of three popular circulars which are de-**Bureau of Standards.** signed to furnish standards for the household. These are entitled respectively "Measurements for the Household," "Materials for the Household," and "Safety for the Household." The technical features of these subjects are handled in a manner which is intelligible to the average householder.

The general public may send weights which conform to the standard requirements and have them verified by the Bureau for a nominal fee. The brick piers supporting these balances run down to the ground independently of the building and therefore do not take up the vibrations. The room has double

windows and double heat regulation. Allowances are made for the buoyancy of the weight caused by the buoyant effect of the air. The amount of this buoyancy is carefully computed, since it differs with every different material of which weights are made.

CHAPTER II.—INSPECTION OF FOODS, DRUGS AND MEAT—PURIFYING OF WATER

Bureau of Chemistry. The Bureau of Chemistry is entrusted with the enforcement of the Food and Drugs Act which became effective on January 1, 1907.

The organization includes: (1) Inspectors who procure samples for analysis and information regarding the manufacture and sale of food and drugs; (2) chemists who analyze samples and make scientific investigations of problems relating to the composition and adulteration of food and drugs; (3) the Board of Food and Drug Inspection, whose duties are to consider all questions arising in the enforcement of the Food and Drugs Act upon which the decision of the Secretary of Agriculture is necessary, to consider correspondence involving interpretations of the law and questions arising under the law, and to conduct hearings based upon alleged violations of the Food and Drugs Act.

The enforcement of the law proceeds along two lines: First, products imported into the United States from foreign countries; and, second, prod-

ucts manufactured or sold in the District of Columbia or the Territories, introduced into interstate commerce, or exported from the United States.

In the case of imported foods and drugs no prosecutions are made. The effort of the department is confined to preventing the importation of adulterated or misbranded goods and causing their reshipment beyond the jurisdiction of the United States. This work is done through branch laboratories which are located at the leading ports of entry, where inspection is made of all food and drug products that enter the United States.

In the case of goods shipped into interstate commerce, or manufactured or sold within the District of Columbia or the Territories, the procedure of inspection is necessarily different. The inspectors visit all sections of the country to secure samples for analysis and such information as may be required by the department. The duties of the inspectors are as follows: (1) To investigate the wholesale and retail market and obtain samples of foods and drugs shipped in interstate commerce. (2) To inspect manufacturing establishments and secure information in regard to the nature of the foods shipped in interstate commerce. (3) To investigate the manufacture and use of substances which are or may be employed for the adulteration of foods and drugs and methods of preparation which may lead to the damage or deterioration of foods and drugs, or to

the use of improper materials in their manufacture. (4) To inspect foods and drugs imported at ports where branch laboratories have not been established. In addition to these duties, special investigations are frequently made by inspectors concerning important questions of sanitation and processes of manufacture.

Samples are shipped to the laboratories at Washington or to one of the 22 branch laboratories which are located at the principal ports of entry and the leading commercial centers.

When goods are found that are in violation of the law, the dealer or shipper is given an opportunity to appear before the Secretary of Agriculture, the Board of Food and Drug Inspection, or such official as may be designated, and present evidence in reference to the question at issue. If after the hearing it appears that the law has been violated, the board makes the appropriate recommendation to the Secretary of Agriculture, who certifies the fact to the proper United States attorney through the Attorney General, together with the necessary information regarding the case. It is then the duty of the district attorney to prosecute the case in the United States district courts.

The law also provides that adulterated or misbranded food or drugs sold or offered for sale in the District of Columbia or the Territories, imported, delivered for export, or introduced into in-

terstate commerce may be seized and disposed of by destruction or sale, as the court may direct.

Bureau of Animal Industry.

The enforcement of laws regarding meat inspection is carried on by the Bureau of Animal Industry.

The purpose of the Meat Inspection Service is to eliminate diseased or otherwise bad meat from the general food supply; to see that the preparations of the meats and products passed for human consumption is clean; to guard against the use of harmful dyes, preservatives, chemicals or other harmful ingredients; and to prevent the use of false or misleading names or statements on labels.

The work in connection herewith includes the inspection of animals before and after slaughter and the supervision of all processes of preparation and manufacture, namely, the labeling of canned and fresh meat, and the preparation, curing, canning and other processes of manufacture.

The Bureau also enforces all laws with regard to the hygienic and humane treatment of live stock in interstate commerce.

Purifying of Water

Investigations of water supplies are conducted by the Public Health Service and accurate records are

Public Health Service.

maintained of all public water supplies in the United States. Scientific studies are made of the pollution of streams and

Government Meat Inspection. Applying inspection mark to inspected and passed hog carcasses.

Raw Oyster Inspection.

coastal waters in order that people may not contract diseases by drinking contaminated water supplies. In connection herewith examinations are made of shellfish beds, so that these may not be in polluted waters.

Forest Service.

The protection of forest cover at the head water of the rivers insures a regular, even supply of water at all seasons of the year for the use of towns and cities. Twelve hundred cities and towns have their water supply protected and kept free from contamination on National Forests. Important among these are Los Angeles and San Diego, California; Portland, Oregon; Salt Lake City, Utah; and Colorado Springs, Colorado.

Geological Survey.

The underground circulation of water throughout the country is a problem which greatly affects the supply of water for domestic use. Investigations concerning this matter are carried on by the Geological Survey.

CHAPTER III.—THE MOTHER AND BABY

The Children's Bureau was established by Act of Congress on April 9th, 1912. The law concerning it read:

> "The said Bureau shall investigate and report . . . upon all matters pertaining to the welfare of children and child life among all classes of our people and shall specially investigate the question of infant mortality, the birthrate, orphanage, juvenile courts, desertion, dangerous occupations, accidents, diseases of children, employment, legislation affecting children in the several States and Territories."

It therefore originally had no legislative or executive power, and its work has been one of investigation and scientific research in all that concerns the care and development of normal children, as well as of unfortunate and handicapped children. The information gathered by the Bureau is placed at the disposal of the general public and officials interested therein.

However, on the 1st of September, 1917, the Bureau was given the administration of the Child Labor Act. This still remains its only executive function. (See page 368.)

The work of the Bureau may be said to fall under the headings of publications, direct contact with individuals, cooperation with public and private agencies, and administration of the Federal Child Labor Law.

Owing to its administrative character, the most important part of the Bureau's work may be said to be the issuing of pamphlets in which are incorporated the results of the investigations made by the Bureau.

These publications up to the present may be divided as follows:

(a) Pamphlets for the individual mother on parental care and the daily care of her children.

(b) Reports based on personal surveys by the staff of the Bureau. These concern Infant Mortality, Child Welfare in Selected Rural Committees, Mental Defectives, Community Provision for Children's Play, and the Administration of State Child Labor Laws.

(c) Pamphlets based on research other than the personal surveys by the staff of the Bureau. These are "Handbook of Federal Statistics of Children," "Maternal Mortality," "Child Labor Legislation in the United States," a summary of all Child Welfare Laws passed in the United States during the year 1916, various material on laws concerning children abroad, a tabular statement of Infant Welfare Work in the United States, Birth Registration, Child Wel-

fare Exhibits, Baby Week Campaigns, Children's Health Conferences, etc.

The Bureau has direct contact with individuals through:

(a) relations with mothers during the personal investigations by the staff of the Bureau.

The Bureau's first personal investigation was made in Johnstown, Pa. This began with the birth records and it took in all the children born within a year. The homes of the babies were visited by the women agents of the Bureau, and the record of each child followed through the first year of its life, or as long as it managed to survive.

Schedules were planned concerning health, feeding, etc., under the guidance of medical authorities.

This is typical of the manner in which the infant mortality investigations of the Bureau are conducted.

During the personal surveys in rural communities conferences for mothers are held. They are encouraged to bring their children to these conferences for examination by a child hygiene expert. Advice is given to the parents on the methods of obtaining the best development for their children. No prescriptions are given, but parents are referred to a physician should a reason for treatment be found.

A carefully selected exhibit is also shown to make the advice of the Bureau's representative more emphatic.

(b) Publications on Pre-natal Care and Infant Care for the individual mother.

The Bureau has taken special pains in getting to the individual mother these pamphlets. A great deal of assistance is given the Bureau by the magazines and newspapers, hospitals, social welfare organizations, and in some cases health officials also supply names to the Bureau.

(c) The Bureau is accessible to general inquiries as to child welfare. These are either handled by the Bureau direct through its publications, or its correspondence, or they are passed on to the right channels.

The Bureau cooperates with public and private agencies through:

(a) The Birth Registration Campaign organized by the Bureau. The Bureau found that its various investigations were handicapped by the fact that very few of the States had complete Registration of Births. "Birth Registration," therefore, was the subject of the first bulletin issued by the Children's Bureau. In cooperation with the Federal Bureau of the Census, and with the assistance of many volunteer organizations of women a campaign for complete Birth Registration has been going forward since this first bulletin appeared.

(b) Baby Week Campaigns. These are for the purpose of popularizing the work of infant welfare

and improving the conditions of children in the particular town or district in which they are held.

In September, 1915, with the assistance of the Federation of Women's Clubs, a nationwide observance of Baby Week was promoted.

The pamphlet on "Baby Week Campaigns" issued by the Bureau gives complete suggestions and programs covering each day for the holding of such campaigns. These serve as an opportunity for distributing practical literature published by the Bureau and other agencies, and Baby Week becomes many times a starting point for permanent infant welfare work.

(c) The card index of all existing legislation affecting child welfare completed by the Bureau. This is of the greatest service to the Bureau, not only in the answering of correspondence, but also to the various states in codifying their laws regarding child welfare. Whenever requested so to do, the Bureau places at the disposal of the authorities in question a typewritten copy of the index to children's laws of that particular state.

(d) The information constantly gathered by the Bureau through correspondence and the work of its experts is classified, so that it may be available for organizations or individuals interested in the promotion of child welfare.

(e) The Library of the Department of Labor includes a collection of books and pamphlets and re-

ports on all phases of child welfare both in the United States and abroad, many of which are not to be found elsewhere in the country.

(f) The Bureau possesses two sets of lantern slides showing "A Day in Baby's Life," and "When Tom Went to Work," which are loaned free of charge to people in all parts of the country.

Bureau of Education.

The Bureau of Education is interested in the question of Kindergartens for young children.

The work of the Kindergarten Division may be divided into the five following parts:

(1) Statistical surveys, to show the growth of public, private and charitable kindergartens throughout the country.

(2) Collection and study of data concerning the various methods of kindergarten training in the United States, the Kindergarten Division acting as a clearing house for the interchange of such information.

(3) Correspondence with parents or guardians, giving information or advice regarding kindergarten work.

(4) Propaganda work for the spread of kindergarten education.

(5) Collection and study of kindergarten laws in the various states, and dissemination of information regarding their practical workings.

Although the kindergarten is recognized as a necessary part of a well-organized school system and

1,879 cities and towns in the country have such classes, about nine-tenths of the 4,300,000 children between four and six years of age are still unprovided for in this respect. A statistical survey is made by the Kindergarten Division in order that kindergartners, superintendents of schools and the public generally may secure information at any time regarding the progress of the movement in their own and other communities. This statistical information is published in the annual report of the United States Commissioner of Education.

The Kindergarten Division is a clearing house of information concerning every kind of kindergarten work carried on in the United States. It seeks to gather information from all sources concerning kindergartens in the country, with a view to passing on this information to those in other states who might benefit thereby.

A great part of the Division's work lies in the direct correspondence with parents who write to the Division for every kind of advice concerning their problems.

To give an idea of the way in which this is done it would perhaps be best to quote from a typical correspondence between a mother of two little girls and the representative of the Kindergarten Division.

> ". . . I want to tell you how much I appreciate your almost personal letters to me. I feel that I can consult you about my little girls,

'ages three and four,' and know that you will help me. My children will play for a few minutes, say at work with crayons and then tire of that and do the same with everything except when they have live pets and their dolls. Even the latest additions, a tricycle and an automobile, they tire of quickly. Is it their extreme youth, or is it a fault of my training or inheritance? The last seems almost absurd, but I see myself over again in that trait in my little ones. I do things, but if I can't finish quickly I lose patience. Can you help me?"

The reply to this letter runs as follows:

". . . . No child of three or four years can be expected to have his attention held by any one interest for a great length of time. That is the reason why in the kindergarten the periods of play and work are made short. It is true of all child life; but as children grow older they can concentrate longer on one subject, on up to maturity, when they have *sometimes* learned to control their habit of attention. They should be permitted to pass from one activity to another at the age you have mentioned. They are just the right age for kindergarten and if you have a place for them to play out-of-doors there is a great deal of material that could be used for them.

"I will send you some suggestions for children's work and play.

". . . . In making out for your use the enclosed suggestions as to work and play for and

with your little girls I realize the temptation that would probably accompany such an outline. For we are all inclined to try to do too much in the way of definite direction, and do not leave enough freedom and opportunity for experimenting with material.

"This summer, I am expecting the pleasure of working and playing with a four-year-old boy. My plan is to use the outline as a guide and then keep a record of his responses to the materials, and also of his progress in skill and ability to take the initiative.

"It will give me pleasure if you can send me some account of the way your little daughters develop." The enclosed accompanied the letter.

OUTLINE FOR ORGANIZED WORK AND PLAY IN THE HOME

Taking as a basis the scientific fact that every child has within him instincts, tendencies, impulses which supply the starting point for the process of education, the task of parents and teachers is to select material which will furnish incentives for the right growth of these tendencies.

THE INSTINCT OF NURTURE

Material for out-door use. Garden-bed for each child; set of tools and watering-can; plant seeds that will come up rapidly (lettuce, radish, nasturtium, sweet alyssum); feed chickens; scatter crumbs for birds.

Material for in-door use. Take care of bird in cage; take care of gold-fish.

THE INSTINCT OF RHYTHM

Material for out-door use. Swing; see-saw; slide; skipping; marching.

Material for in-door use. Piano or talking-machine music, simple march time; clap the time with hands, tap it with feet; clap loudly, clap softly, then alternate loud with soft, also fast and slow.

THE INSTINCT OF ARRANGEMENT

Material for out-door use. Sand-box or pile, stones and shells; string large beads, seeds, acorns, and macaroni cut in short lengths.

Material for in-door use. Cutting paper by shipping or fringing; pasting designs; coloring with crayola; designs in stencil patterns colored with crayolas.

THE INSTINCT OF CONSTRUCTIVENESS

Material for out-door use. Building-blocks, pieces of shingle, sticks; clay for modeling, sand pile (mud-pies); play store.

Material for in-door use. Building-blocks, sewing with coarse blunt needle and thread on burlap, make bags, holders, cushion covers.

THE INSTINCT OF TALKING, TELLING

Material for out-door use. Listening to stories, telling stories; singing little songs, repeating short verses.

Material for in-door use. Make picture-books; pictures in Stampkraft books.

THE INSTINCT OF INVESTIGATION

Material for out-door use. Blow soap-bubbles; wash and dry dolly-clothes; float egg-shell or walnut-shell boats on water.

Material for in-door use. Do little bits of cookery and housework; each child have little broom and her own dustcloth.

It often happens that the absence of kindergartens in a community is due as much to lack of interest in and demand for this kind of training on the part of the public, as to the inability of school authorities to provide it because of limited funds, limited space, or other reasons. The Kindergarten Division is attempting to meet the need for general propaganda work for the kindergarten, particularly among parents and women's clubs, in the following ways:

It has a series of articles on kindergarten methods for the home, for distribution among parents. These articles were written by mothers who were formerly trained kindergartners, and are intended especially for parents who do not live within reach of kindergartens.

The Division issues a list of books for mothers written by kindergarten experts. If the books cannot be obtained from local libraries, they may be borrowed from the Library of the Bureau of Education.

The Division also issues a variety of publications and popular leaflets on the kindergarten, copies of which may be obtained on request. They are as follows:

Kindergartens in the United States.
The Montessori Method and the Kindergarten.
The Kindergarten in Benevolent Institutions.
Kindergarten Training Schools.
Kindergarten Legislation.
Montessori System of Education.
Adjustment Between Kindergarten and First Grade.
Your Children and Your Children's Friends.
Why Should the Kindergarten be a Part of the Public School System?
How the Kindergarten Helps the Grade Teacher.
Suggestions for Arousing Interest in the Kindergarten.
Kindergarten Statistics, 1915-16.
Exhibit and Lantern Slides.
Every Little Boy and Every Little Girl.
Kindergarten Legislation in California; How We Secured it.
Kindergarten Promotion in Baltimore.

Programs of work for mothers' clubs and blank forms for petitioning school boards for kindergartens may also be obtained from the Kindergarten Division.

To help promote popular meetings on the kindergarten subject, the Division assists in securing speakers, and loans exhibits, lantern slides and lecture outlines. Its leaflets are also available for this purpose.

Every possible help is given by the Division to organizations or individuals interested in securing better kindergarten laws for their states. To this end it supplies information regarding existing laws, suggestions for educational work preliminary to legislative campaigns, methods of securing support for a bill, and points in regard to legislative procedure. When requested, letters and literature are sent directly to individuals and legislators whom local workers desire to interest.

CHAPTER IV.—EMPLOYMENT SERVICE—WOMEN'S DIVISION

Department of Labor.

The United States Employment Service has a division for women's work which gives advice and is ready to find employment for women on the same basis as it does for men. (See page 268.)

PART VIII

GIRLS AND BOYS

CHAPTER I.—WHAT THE GOVERNMENT DOES TO ASSIST EDUCATION

Bureau of Education.

The United States Bureau of Education was created by an Act of Congress in 1867 for the purpose of "collecting statistics and facts as shall show the condition and progress of education in the several states and territories, and for diffusing such information respecting the organization and management of school systems, and methods of teaching, as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise promote the cause of education throughout the country."

The Bureau, therefore, collects statistics concerning educational institutions both public and private and publishes these in an annual report and in a series of bulletins. Fifty or more of such bulletins are published each year. They contain not only the results of statistical inquiries, but also serve to interpret educational movements and describe significant educational experiments.

Titles of some of these recent bulletins will indicate their scope:

"Education for the home"; "School hygiene"; "Kindergarten in the United States"; "The Mon-

tessori Method"; "Rural school houses and grounds"; "Vocational guidance"; "The public school system in Gary, Ind."; "Consolidation of rural schools"; "Music in public schools"; "The teaching of community civics"; "Vocational secondary education"; "Open air schools"; "Adult illiteracy"; "Negro education"; "Gardening in elementary city schools"; "Pineneedle basketry"; "Three short courses in homemaking."

Many of these bulletins are illustrated and are distributed free up to a certain quantity and then sold at a nominal fee, which is never more than 15 cents.

There have also been developed a series of brief duplicated circulars dealing with topics in various fields of education, more than 1,000,000 of which are distributed annually.

As the Bureau of Education is primarily a clearing house of information concerning every possible angle of education both in the United States and abroad, the printed material issued and circularized is as much as possible in conformity with a number of requests for information coming into the Bureau on certain subjects.

Bureau of Education. The work of the Bureau of Education in connection with city schools is carried on in cooperation with the various state systems, the Federal authorities assisting the state officers when asked so to do.

The work of this Division may be said to fall under the following headings:

(a) It acts as a clearing house of information on every phase of city school work all over the country.

(b) At the invitation of the authorities in charge it holds surveys of towns and cities, which are conducted on the same plans as those of the rural schools. (See page 121.) In connection herewith it gives standard tests to pupils, comparing the results obtained with the results of other cities. The officers of the Bureau go into the classrooms and observe the methods of teaching carried on there.

(c) The Division gives advice concerning the training of teachers in service.

(d) It criticizes courses of study upon request.

(e) It sends out bulletins and printed matter connected with phases of city school life, for instance, school administration in small cities and compulsory education in different states, suggested improvements carried out by other states, etc.

(f) It sends out regular circular letters concerning the work done in city schools, so as to suggest improvements.

(g) It goes into teachers' institutes, giving instruction to teachers.

(h) It gives lectures to county superintendents, and at city conventions on the problems of school administration.

(i) It possesses complete information concerning

the laws of schools and libraries, issuing legislative circulars designed to keep the men connected with schools and legislators informed as to the movements and progress in school legislation during the session of the legislatures.

Bureau of Education.

As hardly more than half of the thousand or more institutions calling themselves colleges do work that is even of minimum college grade, the need for definite information about colleges and universities led to the appointment of a specialist in higher education in the Bureau of Education. One of the first tasks undertaken by this officer was an investigation of the claims of the various colleges preliminary to a classification based on admission requirements, graduation standards, and quality of work accomplished. At the present time the activities of the Bureau in higher education are confined mainly to listing colleges, answering inquiries of parents and others who seek authoritative information about the institutions to which they propose to send their boys and girls, and to making educational surveys in which the systems of higher education in one state may be examined and compared with those of other states.

Lists of accredited high schools are prepared and published by the Bureau, so that the university officer may know whether the school an applicant comes from is acceptably regarded by those best acquainted with it, and so that the parent may know

that his boy or girl is in a school that is considered up to standard.

In its surveys of higher educational institutions the Bureau considers particularly the question of duplication of effort, so that every citizen in a state whose colleges are surveyed may know whether the money his state appropriates is being spent to best advantage or scattered ineffectively among a number of institutions.

Bureau of Education. Girls and boys interested in taking up high education at the European universities can apply to the "Foreign Department" of the Bureau of Education for advice.

This department also keeps educators informed of new methods of education in various foreign countries. This is done by publishing a chapter in the Commissioner's annual report, and by issuing regular bulletins based on the questions most constantly asked of the Bureau.

Bureau of Education. The Bureau of Education has established recently a Division of Commercial Education. This Division is prepared to investigate local, state and national educational opportunities for training for business, domestic and foreign; to recommend study courses and to furnish information that relates to this phase of instruction; to cooperate through advice and counsel in the establishment of a proper relation between the opportunity for training and the needs of business; and to pro-

mote and further business in general by such measures as will ensure efficient business methods, a wise trade policy and an ever-increasing volume of trade.

Federal Board for Vocational Education.

On the 22nd of February, 1917, there was passed the Smith-Hughes Act, which placed almost $2,000,000 a year (to be increased each year) in the hands of the Federal Board for Vocational Education, to improve the efficiency of the working people of the country.

This bill was the result of an investigation made by "The Commission on National Aid to Vocational Education," created by Act of Congress on January 20, 1914. It authorized the President of the United States to appoint a commission of nine members "to consider the subject of National Aid to Vocational Education and report their findings and recommendations not later than June 1, next."

The scope of its work was to fall under the following six headings:

(1) To what extent is there a need for Vocational Education in the United States?

(2) Is there a need for national grants stimulating the States to give Vocational Education?

(3) What kind or forms of Vocational Education should be stimulated by national grants?

(4) How far can the Federal Government aid, through expert knowledge, Vocational Education in the various states?

(5) To what extent could the Federal Government

aid the states through national grants for Vocational Education?

(6) Under what conditions should grants to the States for Vocational Education be made?

At the termination of its investigation the Commission found that there was an urgent demand to prepare workers for the more common occupations in which the great mass of people find useful employment.

They also maintained that there was a great need of providing Vocational Education of this character for every part of the United States, in order to conserve and develop the country's resources; to promote a more productive and prosperous agriculture; to prevent the waste of human labor; to supplement apprenticeship; to increase the wage-earning power of productive workers; to meet the increasing demand for trained workmen, and to offset the increased cost of living.

It was finally concluded that Vocational Education was necessary to national prosperity, and to keep the country's position in the markets of the world.

It was recognized by the Commission that training for all the different vocations is of importance. However, agriculture, trade, and industrial education was most needed at the present time.

Home Economics, although not recommended by

the Commission, was afterwards provided for in the bill.

The Commission recommended:

That national grants should be given to the states for the purpose of stimulating Vocational Education in agriculture and in the trades and industries.

That grants should be given in two forms:

(a) For the training of teachers of agriculture, trade and industrial, and home economics subjects.

(b) For the paying of part of the salaries of teachers, supervisors, and directors of agricultural subjects, and of teachers of trades and industrial subjects.

The schools coming under this grant were to be aided in part by the national government, and were to be entirely supported and controlled by the public, the education given in them being of less than college grade. They were to prepare boys and girls of over 14 years of age for useful or profitable employment in agriculture, trades and industries.

In order to meet a variety of needs, the schools were to be of three types:

(a) All-day schools, in which practically half of the time could be given to actual practise for a vocation on a useful or productive basis.

(b) Half-time schools for young workers over 14 years of age which should extend either their vocational knowledge or give preparation for entrance

to a vocation or extend the general civic or vocational intelligence of the pupil.

(c) Evening schools to extend the vocational knowledge of mature workers over 16 years of age. So much for the recommendations.

The Smith-Hughes Act decreed that the money of the Federal Board for Vocational Education was to be used:

(1) For cooperating with the states and paying salaries of teachers of agricultural subjects.

(2) For the payment of salaries of teachers for trades, industrial and home economics subjects.

(3) To pay for the training of teachers on all these subjects.

The Act establishes a cooperative agreement between the Federal Government and the state. Every dollar of Federal money appropriated has to be met by an equal amount by the states, local community, or both, in which it is to be sent. In this way the states and the nation unite for the common purpose in view.

The law provides for the appointment by the President of this Federal Board for Vocational Education to represent the interests of the Federal Government. It consists of the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, and the Commissioner of Education, together with three citizens who represent respectively the manufacturing and commercial interests of the na-

tion, the agricultural interests and the labor interests.

The Act further provides that state boards shall be created through the state legislators and shall consist of not less than three members working in cooperation with the Federal Board.

The state boards have to lay before the Federal Board outlines of plans by which it is proposed to conduct their Vocational Educati n activities. These plans the Federal Board must carefully examine. If it finds them to be in accordance with the law, it authorizes the money apportioned to the various states to be paid, this being regulated on a scale of population.

Bureau of Education.

The Bureau of Education since 1912 has a special fund gradually increasing for the investigation and promotion of industrial education. The work of the Division of "Vocational Education" between 1914 and 1917 was one of the agencies which assisted in the establishing of the Federal Board for Vocational Education. (See page 358.)

The Bureau of Education is continuing its work of aiding states and communities to introduce programs of vocational work, outlining plans for the training of teachers of such subjects, holding conferences on the methods and practise of manual training and vocational education, and carrying on educational surveys wherein local industrial condi-

tions are studied as a basis for suitable vocational training.

States Relations Service.

The Division of "Agricultural Instruction in Schools" is occupied with the teaching of agriculture throughout the country. Its work is done with the rural and secondary schools and may be divided as follows:

For the rural schools:

(1) It outlines states' courses in agriculture, cooperating with:

(a) The State Department of Education.
(b) The State College of Agriculture.

(2) It prepares publications:
(a) On general problems of teaching agriculture.
(b) On specific subjects such as corn, cotton, tomatoes, poultry, etc.

(3) It prepares statements on how to use farmers' bulletins.

(4) It gives assistance to:
(a) Supervising school officers.
(b) School training teachers of elementary agriculture.

(5) It assists individual teachers through correspondence.

For the secondary schools:

(1) It organizes materials:
(a) Courses of study.
(b) Lessons, plans and outlines.

(2) It draws up publications for teachers:
  (a) Department bulletins.
  (b) A series of documents on agricultural education.

(3) It allows the use of materials:
  (a) Lantern slides loaned on agricultural subjects for educational purposes.
  (b) Furnishes lists of references.

(4) It trains teachers by:
  (a) College training courses.
  (b) Aiding teachers in service.

(5) It studies special problems in:
  (a) Use of land.
  (b) Local extension work.

The Division publishes for the benefit of teachers a complete list of publications issued by the Department of Agriculture which might be useful to them in their work.

Its officers hold conferences not only with those training for the teaching of agriculture in schools and colleges, but also with those training to be supervisors of such teachers.

The Division has issued a course of elementary agriculture for the Wisconsin rural schools. The lessons are divided month by month and applicable to the agricultural conditions in Wisconsin existing for that particular month. For instance, under September we find:

Seed corn selection. Curing seed corn. Wisconsin weeds and weed seeds. Home gardens in Sep-

tember. Ten ear samples of corn. Selecting the project flock of poultry. Review and management lesson.

A similar course of study has been issued for Alabama with special efforts on the cotton growing, and also for Maryland, other states being shortly to follow.

Bureau of Education.

Every state now has at least one so-called "Land Grant" college, supported in part by Federal aid, giving instruction in agriculture and mechanic arts. Supervision of the expenditure of the money thus provided is vested by Congress in the Bureau of Education, which has a "specialist in land grant college statistics," whose business it is to see that the Government's money is used for the purposes contemplated by the law, and in general that the "Land Grant" colleges, or "agricultural and mechanical colleges," as they are more often termed, are doing their work effectively.

There is wide difference in the importance of this Federal aid in the various states; in some states the Government's contribution forms only a small part of the total income of the state college, while in others it constitutes the bulk of the available support.

The Division of "Home Economics" of the Bureau of Education was organized in 1915 to encour-

age the teaching of home economics. The work of the Division may be divided as follows:

(1) It acts as a clearing house of information concerning methods of teaching home economics all over the United States. Through this Division it is possible for teachers of domestic economy in the North, South, East and West to discover what methods the other one has found most successful.

(2) Thousands of letters are sent out to school teachers urging the teaching of home economics to the child in the grade school and high school and to the young girls of the colleges and normal schools. During April of this year, for instance, there was sent out 20,533 circular letters relating to home economics in answer to special requests sent to the Bureau of Education. These circular letters relate to home economics in public schools and the organization and demonstration of home economics in classes for the larger cities.

(3) At the invitation of those in charge officers of the Division are sent out to assist in surveys of home economics in city school systems and state supported institutions of higher education. These surveys result in the establishment of certain standards in the teaching of this subject. The expert officials of the Bureau on these occasions give advice and make recommendations concerning any phase of the work.

(4) The Division keeps a complete library of

home economics books and teachers in the subject can arrange to borrow these. The Division also issues bibliographies on various subjects in home economics.

(5) It also has a list of all schools, universities and normal schools teaching home economics, with the number of teachers employed.

It has a list of 5,000 graduates on home economics from the land grant colleges.

(6) Conferences are held by this Division for the study of special types of teaching in home economics, all special problems being discussed. These conferences are of great value to the normal school teacher in the general policies of education.

(7) The correspondence of the Bureau consists in giving all manner of advice to those interested concerning courses of study, equipment, text-books and the solving of special problems connected with home economics.

CHAPTER II.—EMPLOYMENT SERVICE AND ENFORCEMENT OF FEDERAL CHILD LABOR ACT

Department of Labor.

The Employment Service of the Department of Labor has a division for girls and boys. These young people in applying for positions are given expert advice as to professional training. If the applicants are still at school they are urged to continue their studies. If they should have left school an appeal is made to their parents or guardians to this effect. They are, however, given the benefit of the Employment Service. (See page 268.)

Children's Bureau.

On the first of September, 1917, the Federal Child Labor Act came into force. The administration of this Act, which it is roughly estimated concerns 150,000 children, will be enforced by the Children's Bureau.

The Act, generally speaking, forbids the working of children under sixteen years of age in any mine or quarry, or of children under fourteen years of age in any mill, cannery, workshop, factory or manufacturing establishment. In these establishments,

for which it fixes a fourteen year age limit, it prohibits employment for more than eight hours in any work day, more than six days a week, or work before six a. m., or after seven p. m.

CHAPTER III.—READING CIRCLES

Bureau of Education. Under the direction of librarians and teachers, Boys and Girls' Reading Circles are organized on the same basis as Parents' Reading Circles. (See page 112.)

CHAPTER IV.—SCHOOL AND HOME GARDENING

Bureau of Education.

The School and Home Gardening Division of the Bureau of Education may be said to do for the child of the cities what the Boys and Girls' Club movement of the Department of Agriculture does for the child of the rural districts. (See page 126.)

The Bureau of Education found that there existed thousands of children in the cities, towns and manufacturing villages with no proper employment out of school hours. Investigation showed that these amounted to about 13,000,000 between the ages of 6 and 20. Of these, about 9,750,000 were enrolled in the public and private schools.

Probably only about 5 per cent. of these children are able to go on vacations during the summer months, and about 85 per cent. remain in their homes without proper employment for their idle hours. Most of them come from poor homes, where there is little opportunity to play, and their spare school hours and vacations are spent on the streets, without any healthy form of amusement.

Home gardening done by these children under the

direction of their school seems to the Bureau of Education an urgent need for these youngsters. In all the manufacturing villages, suburban communities and smaller towns, and in the outskirts of the larger towns and cities, there is much valuable land in back yards, vacant lots and elsewhere which might easily be used for the purpose. The Bureau is urging that in every school community of this kind there should be at least one teacher who knows both theoretical and practical gardening. This teacher it maintains should of course be employed 12 months of the year, could teach nature study, elementary science, and gardening during school hours, and should, out of school hours, direct the home gardening of the children between the ages of 6 and 7 and 14 and 15.

The teacher should help the children find plots of ground near their homes best suited for garden work, aid them by some cooperative method in having the lots properly plowed and prepared for cultivation, help them to select seeds and show them how to plant, cultivate and harvest so as to obtain the best results.

The teacher should spend afternoons and Saturdays of winter, spring and fall, when school is in session, and all of the vacation days of summer, visiting the children in their homes, directing their work, and giving each child such help as it needs. Once a week or oftener, during the vacation months,

the teachers should assemble their children in groups for a discussion of their work and the methods they should employ.

The plan is that vegetables, berries and fruits grown should be first used for the children and their families. The surplus could be marketed to the best advantage, with the teacher's help. Ten or fifteen cents' worth of vegetables each day from the garden of 200 children would amount to quite an important sum. In summer and fall, when the surplus is large and cannot well be marketed to advantage, the teacher could direct and help the children in canning and preserving for winter and home use or for sale.

Experiments made have shown that with proper direction an average child can produce on an eighth of an acre of land from $50 to $100 worth of vegetables a year. A third of the children in the city schools, therefore, might easily produce $300,000,000 a year.

In connection with the recently passed Child Labor Laws, this Bureau draws attention to the fact that a boy of 12 with a small plot of land, working under careful attention, can produce more towards the support of his family than he could were he working in a mill or factory.

The work of the School and Home Gardening Division falls under the following heads:

(1) Interesting the superintendents of city

schools and school boards to employ at least one teacher for each elementary school in practical and theoretical garden work.

(2) The furnishing of every kind of information concerning this work, past experiments and their results, etc.

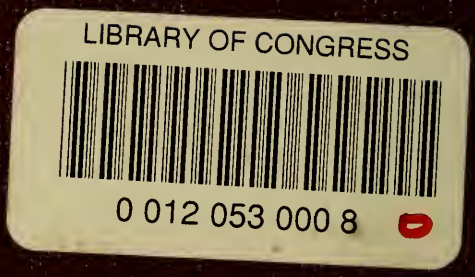
(3) In going to the various towns and cities and as far as possible making extensive demonstrations and assisting in the training of teachers for the work, and showing communities that the expenses of the teachers are amply compensated for by the results achieved.

(4) The issuing of innumerable pamphlets with instructions for practical gardening and growing of vegetables for pupils as well as teachers, especially adapted for small town lots.

(5) At request surveying cities and towns so as to report to the superintendent of schools the possibilities for gardening existing there.

THE LIBRARY OF CONGRESS

WERT
BOOKBINDING
MIDDLETOWN, PA.
OCT 83
We're Quality Bound


LIBRARY OF CONGRESS
0 012 053 000 8